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AIR QUALITY MONITORING

DATA SUMMARY FOR ALBERTA

1991

***Technical Report
Series***

Alberta
ENVIRONMENT



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**AIR QUALITY MONITORING
DATA SUMMARY FOR ALBERTA
1991**

Technical Report Series No. 93-1b

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Environmental Assessment Division
Alberta Environmental Protection

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This report is one in a series of air quality annual reports produced by Alberta Environmental Protection for 1991. The following air quality annual reports are available for 1991:

Summary of Air Quality Monitoring in Alberta: 1991.

Air Quality Monitoring Report for Alberta: 1991 - Technical Report Series No. 93-1a.

Air Quality Monitoring Data Summary for Alberta: 1991 - Technical Report Series No. 93-1b.

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LIST OF ABBREVIATIONS

Monitoring Locations

EDMU	- Edmonton central (downtown) monitoring unit
ERMU	- Edmonton northwest (residential) monitoring unit
EIMU	- Edmonton east (industrial) monitoring unit
CDMU	- Calgary downtown monitoring unit
CRMU	- Calgary residential monitoring unit
CIMU	- Calgary industrial monitoring unit
EMMU	- Edmonton mobile monitoring unit (Fort Saskatchewan)
FMMU	- Fort McMurray monitoring unit
FRMU	- Fort MacKay monitoring unit

Pollutant Parameters

IQUA	- Index of the Quality of the Air
NH ₃	- ammonia
CO	- carbon monoxide
CO ₂	- carbon dioxide
COH	- coefficient of haze
H ₂ S	- hydrogen sulphide
NO ₂	- nitrogen dioxide
NO	- nitric oxide
NO _x	- oxides of nitrogen
O ₃	- ozone
SO ₂	- sulphur dioxide
THC	- total hydrocarbons
TSP	- total suspended particulates
BaP	- Benzo (a) Pyrene
Pb	- lead
VCM	- vinyl chloride monomer

Units of Measurement

ppm	- parts per million by volume
ppb	- parts per billion by volume
ug/m ³	- micrograms per cubic meter
ug/1000 m ³	- micrograms per 1000 cubic meters
kg/ha/yr	- kilograms per hectare per year
mg/day/100 ²	- milligrams per day per 100 square centimeters
mg/100 ² /30 days	- milligrams per 100 square centimeters per 30 days
ug/100 ² /30 days	- micrograms per 100 square centimeters per 30 days
km/hr	- kilometers per hour
mm	- millimeters
ml	- millilitres
ueq/l	- micro-equivalences per liter
us/cm	- micro-siemens per centimeter

INTRODUCTION

This document is prepared as an appendix to the report entitled "Air Quality Monitoring Report for Alberta: 1991". Data summaries are presented for continuous, intermittent, static and acid precipitation monitoring networks operated by Alberta Environmental Protection.

a) Continuous Air Quality Monitoring

Air pollutants which are monitored on a continuous basis include ozone, carbon monoxide, carbon dioxide, the coefficient of haze, oxides of nitrogen, sulphur dioxide, hydrogen sulphide, total hydrocarbons and ammonia. Concentrations of these pollutants are reported once every hour, 24 hours a day, 365 days a year. In the continuous air quality data section of this report, the Index of the Quality of the Air, wind direction and speed, and concentrations of individual air pollutants are summarized. Individual air pollutants have been analyzed, on an annual, seasonal and monthly basis, to resolve simple statistics which describe the data. Seasons are defined as winter (December, January, February), spring (March, April, May), summer (June, July, August) and autumn (September, October, November) (Trenberth 1983). The subsequent pages contain the following information for each continuously monitored air pollutant: 1) percentiles (which indicate the percentage of observations above and below a specific percentile; i.e., 75% means that 75% of the observations are below or equal to the value indicated and 25% of the observations are above the value indicated); 2) simple statistics such as arithmetic and geometric means, arithmetic standard deviations, range, and the number of observations; and 3) the percentage of time that ambient parameter concentrations exceeded the regulations. Wind directions frequency distributions are generated for times when the regulations were exceeded. Annual average pollutant concentrations of historical data are also included. Statistical procedures used in this analysis are detailed in numerous statistics publications (refer to Zar (1974) and Gilbert (1987)).

Data below the limit of detection (LOD) is estimated by the method described in Gilliom and Helsel (1986). It is assumed that the air quality data above the LOD follows a lognormal distribution. The data below the LOD are fitted to this lognormal distribution by the method of least squares. Initially, normal scores are calculated for all data points above the LOD by the following equations:

$$z = F(y)^{-1}(r/n + 1); \text{ and}$$

$$F(y) = r/(n + 1);$$

where $F(y)$ is the cumulative frequency function for the standardized normal distribution, n is the number of observations, r is the order of the observation from the LOD to n and z is the normal

score. A least squares regression of concentration on normal scores is then applied. The data below the LOD may then be estimated by the linear regression equation. Percentiles and statistics are calculated from this modified distribution.

b) *Intermittent Air Quality Monitoring*

Intermittent air quality monitoring refers to air pollutants which are monitored as a 24-hour accumulated loading, once every sixth day, according to the National Air Pollution Surveillance (NAPS) system. Suspended particulates, Benzo (a) Pyrene and lead are monitored according to this system. Vinyl chloride monomer is also monitored on an intermittent basis in the Fort Saskatchewan region. Minimums, geometric means and maximum values are summarized by month for intermittent monitoring parameters. Annual average values of historical data are also provided.

c) *Static Air Quality Monitoring*


Alberta Environmental Protection conducts air quality monitoring, on a static basis, at approximately 52 networks throughout Alberta. Each network consists of at least one monitoring station. Static monitoring is the measurement of total accumulated loadings of pollutants on a one- and three-month schedule. Parameters monitored on a static basis include total sulphation, hydrogen sulphide, dustfall, calcium and fluorides. Static monitoring data are presented as monthly or tri-monthly average loadings for each location. The number of stations at each location is also indicated.

d) *Acid Precipitation Monitoring*

Rain and snow samples were monitored, as an accumulation over a one-month period, at 13 locations in the province by Alberta Environmental Protection in 1991. Chemical analysis was conducted these samples to obtain pH as well as other compounds contained in precipitation. Anion and cation concentrations in precipitation samples are presented as a monthly wet deposition (kilograms per hectare) at each acid precipitation monitoring station. Deposition is calculated using the following equation:

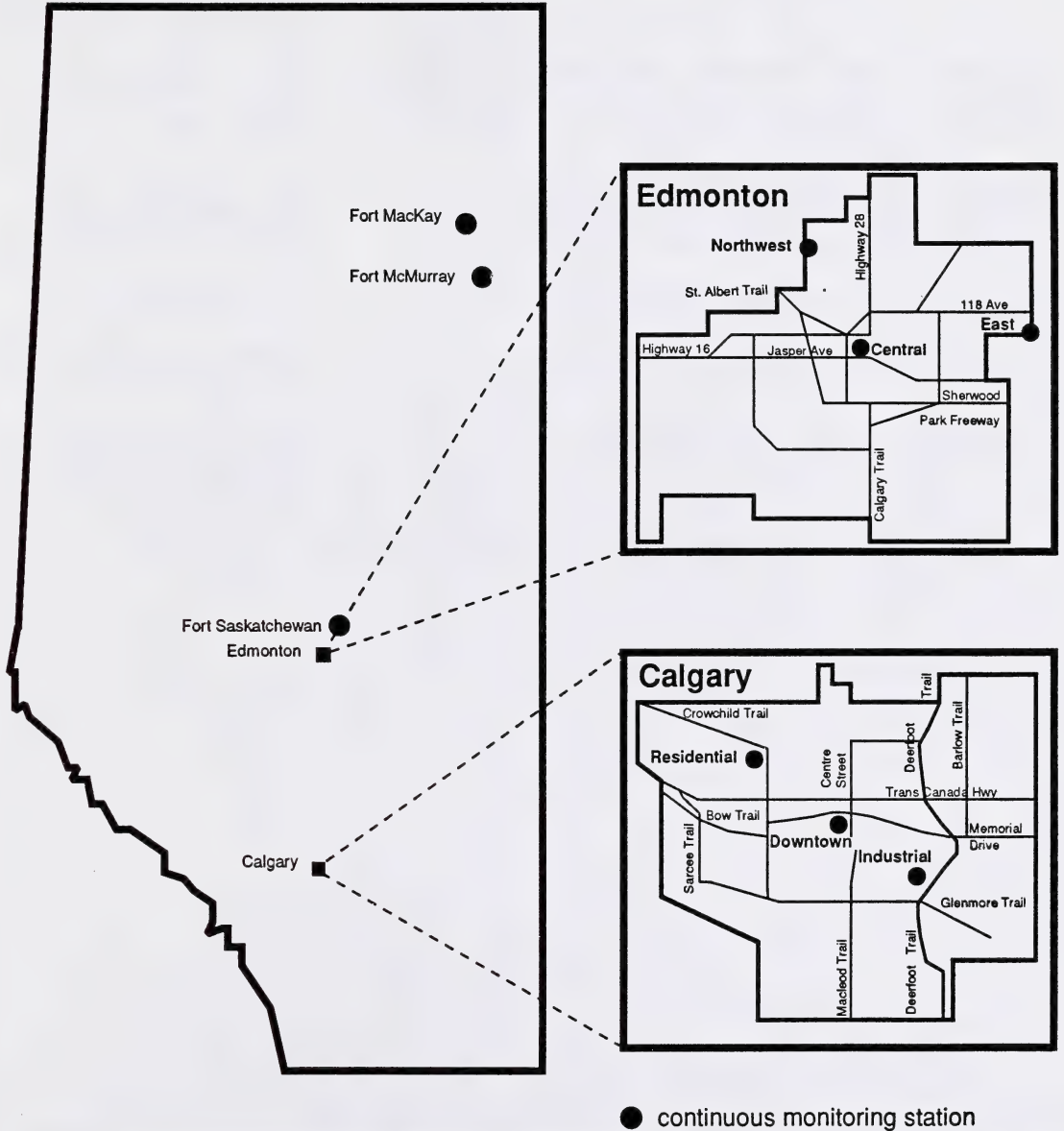
$$\text{wet deposition(kg/ha)} = \frac{\text{concentration(mg/l)} \times \text{precipitation(mm)}}{100}$$

Additional precipitation properties are presented by month for each station.



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LOCATION OF CONTINUOUS AIR QUALITY MONITORING STATIONS



Location of Continuous Monitoring Stations

Station Name	Station Location
<hr/>	
Edmonton Central (Downtown) Monitoring Unit (EDMU)	10255 - 104 St.
Edmonton Northwest (Residential) Monitoring Unit (ERMU)	13335 - 127 St.
Edmonton East (Industrial) Monitoring Unit (EIMU)	105 Ave. and 17 St.
Calgary Downtown Monitoring Unit (CDMU)	611 - 4 St. S.W.
Calgary Residential Monitoring Unit (CRMU)	39 St. and 29 Ave. N.W.
Calgary Industrial Monitoring Unit (CIMU)	49 Ave. and 15 St. S.E.
Fort Saskatchewan Monitoring Unit (EMMU)	100 Ave. and 98 St.
Fort McMurray Monitoring Unit (FMMU)	Franklin Ave. at old waterpump house site
Fort MacKay Monitoring Unit (FRMU)	100 m west of the Fort MacKay Band Council Administration Office

INDEX OF THE QUALITY OF THE AIR
EDMONTON CENTRAL 1991
(% OF TIME IN EACH CATEGORY)

IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	87.8	93.4	85.5	96.5	94.9	99.9	99.5	94.9	98.1	98.2	98.6	81.7	94.08
FAIR	12.2	6.5	14.5	3.5	5.1	0.1	0.5	5.1	1.9	1.7	1.4	15.7	5.68
POOR	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.6	0.23
VERY POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
POLLUTANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	1.9	4.9	0.5	1.1	0.0	0.4	0.0	0.8	1.8	0.0	7.9	4.7	2.00
COH	23.3	18.6	16.3	15.6	11.2	27.8	31.6	47.3	32.6	12.9	18.3	20.6	23.01
NO ₂	58.9	69.5	62.6	39.6	23.0	21.5	13.4	10.1	47.5	78.2	70.6	70.3	47.10
O ₃	15.9	7.0	20.6	43.7	65.8	50.3	55.0	41.8	18.1	8.9	3.2	4.4	27.89

INDEX OF THE QUALITY OF THE AIR
EDMONTON NORTHWEST 1991
(% OF TIME IN EACH CATEGORY)

IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	72.5	82.2	75.7	81.2	68.3	88.9	90.7	88.0	89.6	87.5	82.8	70.0	81.45
FAIR	26.3	17.4	24.3	18.8	31.6	11.1	9.3	11.6	10.3	12.0	16.9	22.4	17.67
POOR	1.2	0.4	0.0	0.0	0.1	0.0	0.0	0.4	0.1	0.5	0.3	6.9	0.83
VERY POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.06
POLLUTANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	0.4	1.8	0.4	0.3	0.7	0.8	0.4	0.9	1.4	0.0	1.0	2.4	0.88
COH	34.3	38.2	27.7	15.8	10.3	15.0	14.9	39.1	50.1	44.4	63.2	49.6	33.55
NO ₂	36.8	43.6	36.3	27.2	9.9	11.1	12.8	8.3	17.1	31.4	27.6	39.8	25.16
O ₃	28.5	16.4	35.6	56.7	79.1	73.1	71.9	51.7	31.4	24.2	8.2	8.2	40.42

INDEX OF THE QUALITY OF THE AIR
EDMONTON EAST 1991
(% OF TIME IN EACH CATEGORY)

IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	74.0	82.2	81.6	93.9	94.2	98.9	99.2	94.1	93.9	89.4	89.0	73.4	88.65
FAIR	25.7	17.7	18.4	6.0	5.8	1.1	0.8	5.9	5.8	10.6	11.0	24.6	11.12
POOR	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.1	0.0	2.0	0.24
VERY POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
POLLUTANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.03
COH	48.4	52.7	38.2	31.1	13.8	28.1	29.8	49.4	45.5	54.3	43.2	37.0	39.29
NO ₂	21.5	17.1	10.9	1.8	1.2	7.8	8.1	5.4	26.7	12.2	36.0	44.2	16.08
O ₃	30.1	30.2	50.9	67.1	85.0	64.1	62.1	45.2	27.8	33.1	20.8	18.8	44.60
SO ₂	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

* NO DATA

INDEX OF THE QUALITY OF THE AIR
CALGARY DOWNTOWN 1991
(% OF TIME IN EACH CATEGORY)

IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	82.4	93.7	69.1	98.6	97.7	99.2	99.9	98.0	100.0	98.1	80.6	88.9	92.18
FAIR	12.4	6.3	30.9	1.4	2.3	0.8	0.1	2.0	0.0	1.9	18.3	11.0	7.28
POOR	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.1	0.53
VERY POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
POLLUTANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.9	4.6	4.6	1.13
COH	13.8	4.2	2.2	1.0	1.1	1.7	7.5	21.1	12.5	15.5	26.8	12.4	9.98
NO ₂	84.7	93.2	97.1	70.1	62.2	73.0	58.2	52.8	76.0	80.6	68.3	81.7	74.83
O ₃	1.5	1.0	0.7	28.9	36.7	25.3	34.3	26.1	9.6	3.0	0.3	1.3	14.06

INDEX OF THE QUALITY OF THE AIR
CALGARY RESIDENTIAL 1991
(% OF TIME IN EACH CATEGORY)

IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	97.4	99.3	96.2	83.3	80.2	87.4	90.7	92.9	99.0	100.0	98.6	98.0	93.58
FAIR	2.6	0.7	3.8	16.7	19.8	12.6	9.3	7.1	1.0	0.0	1.4	2.0	6.42
POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
VERY POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
POLLUTANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	3.2	6.8	1.6	0.4	0.0	0.0	0.4	1.6	3.5	3.5	7.4	5.8	2.85
COH	2.0	1.8	0.3	0.6	0.1	0.3	0.0	0.3	0.0	0.5	0.8	0.9	0.63
NO ₂	49.2	42.4	37.2	13.3	10.8	9.3	11.8	19.6	37.4	33.7	66.8	61.0	32.71
O ₃	45.6	49.0	60.9	85.7	89.1	90.4	87.8	78.5	59.1	62.3	25.0	32.3	63.81

INDEX OF THE QUALITY OF THE AIR
CALGARY INDUSTRIAL 1991
(% OF TIME IN EACH CATEGORY)

IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	80.2	76.0	97.3	96.5	98.4	97.6	99.1	97.8	91.7	94.8	68.0	73.7	89.26
FAIR	14.1	23.7	2.7	3.5	1.6	2.4	0.9	2.2	8.3	5.2	27.9	25.8	9.86
POOR	5.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.5	0.87
VERY POOR	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.02
POLLUTANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	1.1	0.6	0.0	0.1	0.0	0.0	0.0	0.0	4.4	0.1	0.4	5.5	1.02
COH	35.8	47.5	7.7	10.6	2.3	12.8	16.7	40.9	53.9	38.7	62.9	58.8	32.38
NO ₂	41.4	34.2	60.2	26.3	39.4	25.6	29.0	16.8	8.9	34.0	31.0	24.1	30.91
O ₃	21.8	17.7	32.1	63.0	58.3	61.6	54.3	42.3	32.8	27.2	5.7	11.6	35.70
SO ₂	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

* NO DATA

INDEX OF THE QUALITY OF THE AIR
FORT SASKATCHEWAN 1991
(% OF TIME IN EACH CATEGORY)

IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	84.1	92.6	86.4	77.6	65.1	90.8	91.8	85.2	99.2	100.0	100.0	91.9	88.73
FAIR	15.9	7.4	13.6	22.4	34.5	9.2	8.1	14.5	0.8	0.0	0.0	8.1	11.21
POOR	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.07
VERY POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
POLLUTANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	0.0	0.1	0.0	0.0	0.4	1.0	0.0	0.0	0.3	0.0	0.3	0.0	0.18
COH	18.7	11.8	6.2	4.7	2.8	3.5	6.5	14.2	17.6	24.9	32.1	25.7	14.06
NO ₂	27.2	17.0	17.9	4.0	3.6	3.8	5.0	3.9	6.9	10.2	25.4	42.6	13.96
O ₃	54.1	71.1	75.9	91.3	93.2	91.7	88.5	81.9	75.2	64.9	42.2	31.7	71.81
SO ₂	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

INDEX OF THE QUALITY OF THE AIR
FORT MCMURRAY 1991
(% OF TIME IN EACH CATEGORY)

IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	100.0	97.8	99.7	99.4	91.4	92.5	99.2	98.9	100.0	100.0	100.0	100.0	98.24
FAIR	0.0	2.2	0.3	0.6	8.6	7.5	0.8	1.1	0.0	0.0	0.0	0.0	1.76
POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
VERY POOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
POLLUTANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	1.5	1.2	0.5	0.0	1.7	3.8	9.8	17.1	2.9	2.8	2.1	1.1	3.71
COH	14.5	11.9	3.5	1.1	2.3	3.2	2.6	6.7	7.1	1.6	2.4	5.4	5.19
NO ₂	28.8	12.5	27.2	7.6	4.8	2.4	1.6	1.7	15.4	18.5	27.2	47.3	16.25
O ₃	55.1	68.7	68.8	91.2	91.2	90.6	85.7	74.4	74.5	77.0	68.2	46.1	74.29
SO ₂	0.1	5.7	0.0	0.1	0.0	0.0	0.3	0.1	0.1	0.1	0.1	0.1	0.56

* NO DATA

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	1.1	1.5	1.4	1.0	.7	.4	.1	.0	.0	6.1
NNE	1.1	.9	.3	.3	.1	.1	.0	.0	.0	2.9
NE	.9	.9	.8	.3	.0	.1	.0	.0	.0	2.9
ENE	.4	.3	.2	.3	.1	.0	.0	.0	.0	1.3
E	.7	.4	.4	.2	.1	.1	.0	.0	.0	1.9
ESE	.6	.9	1.0	.5	.2	.1	.0	.0	.0	3.2
SE	.7	1.3	1.5	1.0	.5	.1	.0	.0	.0	5.2
SSE	.8	2.0	1.9	1.5	.8	.3	.0	.0	.0	7.4
S	1.1	3.2	3.9	3.1	1.2	.4	.1	.0	.0	12.9
SSW	1.2	4.4	6.9	1.9	.4	.1	.0	.0	.0	14.9
SW	1.0	1.7	2.4	.7	.2	.0	.0	.0	.0	5.9
WSW	.6	.8	.9	.4	.3	.1	.0	.0	.0	3.1
W	.6	.9	1.5	.8	.7	.2	.2	.0	.0	4.9
WNW	.9	2.2	3.1	2.0	.8	.7	.2	.0	.0	9.9
NW	.9	1.8	1.5	1.3	.8	.5	.2	.1	.0	7.2
NNW	.9	1.6	1.3	1.3	.7	.3	.1	.0	.0	6.3
TOTAL	13.2	24.7	29.1	16.7	7.6	3.4	1.0	.3	.0	96.1
CALM = .26%										
MISSING DATA = 3.65%										

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	110	99	36	13	4	0	0	0	0	262
NNE	76	50	12	0	0	0	0	0	0	138
NE	118	85	8	0	0	0	0	0	0	211
ENE	117	97	10	0	0	0	0	0	0	224
E	144	135	31	5	0	0	0	0	0	315
ESE	192	276	81	7	0	0	0	0	0	556
SE	190	294	129	25	3	0	0	0	0	641
SSE	96	120	38	18	0	0	0	0	0	272
S	84	71	20	18	3	1	0	0	0	197
SSW	77	35	24	7	4	6	0	0	0	153
SW	111	58	31	21	25	9	5	2	0	262
WSW	144	125	90	88	45	11	7	3	0	513
W	411	960	517	114	40	5	2	1	0	2050
WNW	419	1079	287	32	7	0	0	0	0	1824
NW	167	180	149	75	28	11	6	1	0	617
NNW	96	137	96	67	31	7	2	0	0	436
TOTAL	2552	3801	1559	490	190	50	22	7	0	8671
CALM = 82 hours										
MISSING DATA = 7 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	1.3	1.1	.4	.1	.0	.0	.0	.0	.0	3.0
NNE	.9	.6	.1	.0	.0	.0	.0	.0	.0	1.6
NE	1.3	1.0	.1	.0	.0	.0	.0	.0	.0	2.4
ENE	1.3	1.1	.1	.0	.0	.0	.0	.0	.0	2.6
E	1.6	1.5	.4	.1	.0	.0	.0	.0	.0	3.6
ESE	2.2	3.2	.9	.1	.0	.0	.0	.0	.0	6.3
SE	2.2	3.4	1.5	.3	.0	.0	.0	.0	.0	7.3
SSE	1.1	1.4	.4	.2	.0	.0	.0	.0	.0	3.1
S	1.0	.8	.2	.2	.0	.0	.0	.0	.0	2.2
SSW	.9	.4	.3	.1	.0	.1	.0	.0	.0	1.7
SW	1.3	.7	.4	.2	.3	.1	.1	.0	.0	3.0
WSW	1.6	1.4	1.0	1.0	.5	.1	.1	.0	.0	5.9
W	4.7	11.0	5.9	1.3	.5	.1	.0	.0	.0	23.4
WNW	4.8	12.3	3.3	.4	.1	.0	.0	.0	.0	20.8
NW	1.9	2.1	1.7	.9	.3	.1	.1	.0	.0	7.0
NNW	1.1	1.6	1.1	.8	.4	.1	.0	.0	.0	5.0
TOTAL	29.1	43.4	17.8	5.6	2.2	.6	.3	.1	.0	99.0
CALM = .94%										
MISSING DATA = .08%										

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	75	179	176	125	45	18	0	1	0	619
NNE	50	102	84	32	6	1	0	0	0	275
NE	64	80	36	1	0	0	0	0	0	181
ENE	96	74	48	4	0	0	0	0	0	222
E	107	128	34	3	1	0	0	0	0	273
ESE	131	106	69	14	2	1	1	0	0	324
SE	206	171	113	31	2	1	0	0	0	524
SSE	235	199	149	45	10	3	0	0	0	641
S	288	207	74	31	5	0	0	0	0	605
SSW	371	86	31	15	3	0	0	0	0	506
SW	326	79	21	19	12	3	0	0	0	460
WSW	264	61	32	17	13	2	1	1	0	391
W	584	255	106	36	17	7	2	0	0	1007
WNW	383	380	224	149	51	15	3	0	0	1205
NW	138	253	238	86	20	12	1	0	0	748
NNW	85	200	193	166	67	24	7	6	0	748
TOTAL	3403	2560	1628	774	254	87	15	8	0	8729
CALM = 31 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	.9	2.0	2.0	1.4	.5	.2	.0	.0	.0	7.1
NNE	.6	1.2	1.0	.4	.1	.0	.0	.0	.0	3.1
NE	.7	.9	.4	.0	.0	.0	.0	.0	.0	2.1
ENE	1.1	.8	.5	.0	.0	.0	.0	.0	.0	2.5
E	1.2	1.5	.4	.0	.0	.0	.0	.0	.0	3.1
ESE	1.5	1.2	.8	.2	.0	.0	.0	.0	.0	3.7
SE	2.4	2.0	1.3	.4	.0	.0	.0	.0	.0	6.0
SSE	2.7	2.3	1.7	.5	.1	.0	.0	.0	.0	7.3
S	3.3	2.4	.8	.4	.1	.0	.0	.0	.0	6.9
SSW	4.2	1.0	.4	.2	.0	.0	.0	.0	.0	5.8
SW	3.7	.9	.2	.2	.1	.0	.0	.0	.0	5.3
WSW	3.0	.7	.4	.2	.1	.0	.0	.0	.0	4.5
W	6.7	2.9	1.2	.4	.2	.1	.0	.0	.0	11.5
WNW	4.4	4.3	2.6	1.7	.6	.2	.0	.0	.0	13.8
NW	1.6	2.9	2.7	1.0	.2	.1	.0	.0	.0	8.5
NNW	1.0	2.3	2.2	1.9	.8	.3	.1	.1	.0	8.5
TOTAL	38.8	29.2	18.6	8.8	2.9	1.0	.2	.1	.0	99.6
CALM = .35%										
MISSING DATA = .00%										

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	188	122	61	20	10	0	0	0	0	401
NNE	258	77	7	4	1	0	0	0	0	347
NE	148	52	19	5	0	0	0	0	0	224
ENE	92	57	20	25	6	1	0	0	0	201
E	124	125	48	16	3	0	0	0	0	316
ESE	89	173	92	30	11	0	0	0	0	395
SE	114	152	97	65	25	11	1	0	0	465
SSE	133	170	85	36	14	4	4	0	0	446
S	241	308	109	31	9	6	0	0	0	704
SSW	306	289	176	56	12	2	2	0	0	843
SW	357	283	175	43	9	2	0	0	0	869
WSW	170	156	170	71	29	1	0	0	0	597
W	96	123	217	70	29	18	4	8	4	569
WNW	104	130	167	141	66	42	39	11	2	702
NW	90	125	147	133	93	69	31	14	10	712
NNW	97	127	126	135	82	47	13	6	3	636
TOTAL	2607	2469	1716	881	399	203	94	39	19	8427
CALM = 109 hours										
MISSING DATA = 224 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	2.1	1.4	.7	.2	.1	.0	.0	.0	.0	4.6
NNE	2.9	.9	.1	.0	.0	.0	.0	.0	.0	4.0
NE	1.7	.6	.2	.1	.0	.0	.0	.0	.0	2.6
ENE	1.1	.7	.2	.3	.1	.0	.0	.0	.0	2.3
E	1.4	1.4	.5	.2	.0	.0	.0	.0	.0	3.6
ESE	1.0	2.0	1.1	.3	.1	.0	.0	.0	.0	4.5
SE	1.3	1.7	1.1	.7	.3	.1	.0	.0	.0	5.3
SSE	1.5	1.9	1.0	.4	.2	.0	.0	.0	.0	5.1
S	2.8	3.5	1.2	.4	.1	.1	.0	.0	.0	8.0
SSW	3.5	3.3	2.0	.6	.1	.0	.0	.0	.0	9.6
SW	4.1	3.2	2.0	.5	.1	.0	.0	.0	.0	9.9
WSW	1.9	1.8	1.9	.8	.3	.0	.0	.0	.0	6.8
W	1.1	1.4	2.5	.8	.3	.2	.0	.1	.0	6.5
WNW	1.2	1.5	1.9	1.6	.8	.5	.4	.1	.0	8.0
NW	1.0	1.4	1.7	1.5	1.1	.8	.4	.2	.1	8.1
NNW	1.1	1.4	1.4	1.5	.9	.5	.1	.1	.0	7.3
TOTAL	29.8	28.2	19.6	10.1	4.6	2.3	1.1	.4	.2	96.2
CALM = 1.24%										
MISSING DATA = 2.56%										

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Wind Summary for 1991
Fort MacKay Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	440	395	443	89	7	0	0	0	0	1374
NNE	275	291	199	4	0	0	0	0	0	769
NE	134	112	57	0	0	0	0	0	0	303
ENE	96	43	9	2	0	0	0	0	0	150
E	62	23	7	6	0	0	0	0	0	98
ESE	64	27	9	3	0	0	0	0	0	103
SE	89	61	22	15	2	0	0	0	0	189
SSE	110	269	193	38	3	0	0	0	0	613
S	308	490	100	0	0	0	0	0	0	898
SSW	356	422	204	9	0	0	0	0	0	991
SW	224	144	84	52	3	0	0	0	0	507
WSW	148	146	95	40	1	0	0	0	0	430
W	178	121	60	3	0	0	0	0	0	362
WNW	162	109	26	5	0	0	0	0	0	302
NW	218	111	66	30	0	0	0	0	0	425
NNW	259	146	74	35	4	0	0	0	0	518
TOTAL	3123	2910	1648	331	20	0	0	0	0	8032
CALM = 448 hours										
MISSING DATA = 280 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	5.0	4.5	5.1	1.0	.1	.0	.0	.0	.0	15.7
NNE	3.1	3.3	2.3	.0	.0	.0	.0	.0	.0	8.8
NE	1.5	1.3	.7	.0	.0	.0	.0	.0	.0	3.5
ENE	1.1	.5	.1	.0	.0	.0	.0	.0	.0	1.7
E	.7	.3	.1	.1	.0	.0	.0	.0	.0	1.1
ESE	.7	.3	.1	.0	.0	.0	.0	.0	.0	1.2
SE	1.0	.7	.3	.2	.0	.0	.0	.0	.0	2.2
SSE	1.3	3.1	2.2	.4	.0	.0	.0	.0	.0	7.0
S	3.5	5.6	1.1	.0	.0	.0	.0	.0	.0	10.3
SSW	4.1	4.8	2.3	.1	.0	.0	.0	.0	.0	11.3
SW	2.6	1.6	1.0	.6	.0	.0	.0	.0	.0	5.8
WSW	1.7	1.7	1.1	.5	.0	.0	.0	.0	.0	4.9
W	2.0	1.4	.7	.0	.0	.0	.0	.0	.0	4.1
WNW	1.8	1.2	.3	.1	.0	.0	.0	.0	.0	3.4
NW	2.5	1.3	.8	.3	.0	.0	.0	.0	.0	4.9
NNW	3.0	1.7	.8	.4	.0	.0	.0	.0	.0	5.9
TOTAL	35.7	33.2	18.8	3.8	.2	.0	.0	.0	.0	91.7
CALM = 5.11%										
MISSING DATA = 3.20%										

NH3 Summary Statistics for 1991
Fort Saskatchewan Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = 2.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.3
Spring	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.3
Summer	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.7
Autumn	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.5
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour					
Winter	.02	.00	.03	.3	2155	0(0.00%)					
Spring	.01	.00	.02	.3	2196	0(0.00%)					
Summer	.01	.00	.04	.7	2204	0(0.00%)					
Autumn	.01	.00	.03	.5	2177	0(0.00%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.3
Feb	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2
Mar	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.3
Apr	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.3
May	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2
Jun	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.7
Jul	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1
Aug	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5
Sep	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5
Oct	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
Nov	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2
Dec	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.3
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour					
Jan	.02	.00	.03	.3	739	0(0.00%)					
Feb	.01	.00	.03	.2	672	0(0.00%)					
Mar	.01	.00	.02	.3	740	0(0.00%)					
Apr	.01	.00	.03	.3	712	0(0.00%)					
May	.00	.00	.02	.2	744	0(0.00%)					
Jun	.01	.00	.05	.7	716	0(0.00%)					
Jul	.00	.00	.01	.1	744	0(0.00%)					
Aug	.01	.00	.04	.5	744	0(0.00%)					
Sep	.01	.00	.04	.5	720	0(0.00%)					
Oct	.00	.00	.01	.2	737	0(0.00%)					
Nov	.03	.00	.04	.2	720	0(0.00%)					
Dec	.02	.00	.03	.3	744	0(0.00%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.7
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour					
1991	.01	.00	.03	.7	8732	0(0.00%)					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

Annual Average Concentration		
Year: 1991		
Pollutant: NH3 [ppm]		

	Year	Fort
		Saskatchewan

	1976	*
	1977	*
	1978	*
	1979	*
	1980	*
	1981	0.00
	1982	0.00
	1983	0.00
	1984	0.03
	1985	0.01
	1986	0.03
	1987	0.01
	1988	0.02
	1989	0.00a
	1990	0.01
	1991	0.01

a ≥ 50% to < 75% of data available

b less than 50% of data available

* no data available

CO Summary Statistics for 1991
Edmonton Central Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = 13.0 PPM											
Ambient 8-hour average regulation = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.3	.4	.5	.8	1.3	2.1	3.5	4.4	7.5	11.4
Spring	.3	.3	.4	.5	.7	1.0	1.5	2.1	2.7	4.5	8.0
Summer	.2	.3	.3	.4	.6	.9	1.2	1.6	1.9	2.9	5.3
Autumn	.0	.3	.3	.4	.6	1.0	1.6	2.3	3.0	4.6	7.9
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
Winter	1.74	1.31	1.42	11.4	2153	0(0.00%)	4(1.50%)				
Spring	1.22	1.02	.85	7.7	2202	0(0.00%)	0(0.00%)				
Summer	.97	.84	.55	5.1	2202	0(0.00%)	0(0.00%)				
Autumn	1.26	1.00	.93	7.9	2178	0(0.00%)	1(0.37%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.3	.3	.4	.5	.9	1.3	2.1	3.3	3.9	6.4	9.0
Feb	.0	.3	.4	.5	.8	1.3	2.0	3.0	3.8	5.8	9.7
Mar	.3	.4	.5	.6	.8	1.2	2.0	2.9	3.7	6.1	8.0
Apr	.3	.3	.4	.5	.7	1.0	1.4	1.9	2.4	3.4	4.8
May	.3	.3	.4	.4	.6	.9	1.2	1.5	1.8	2.3	3.2
Jun	.2	.3	.4	.4	.6	.9	1.3	1.7	2.0	2.6	3.5
Jul	.2	.3	.3	.4	.5	.8	1.1	1.3	1.5	2.1	2.9
Aug	.2	.3	.3	.4	.6	1.0	1.4	1.8	2.2	3.4	5.3
Sep	.2	.3	.3	.4	.6	.9	1.4	2.0	2.5	3.4	7.9
Oct	.2	.2	.3	.4	.6	1.0	1.5	2.1	2.5	3.7	7.0
Nov	.0	.3	.4	.5	.7	1.2	1.9	3.0	3.8	5.9	7.8
Dec	.3	.3	.4	.5	.8	1.3	2.4	4.0	5.3	9.3	11.4
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
Jan	1.66	1.32	1.24	8.7	741	0(0.00%)	0(0.00%)				
Feb	1.62	1.21	1.16	9.7	670	0(0.00%)	0(0.00%)				
Mar	1.57	1.27	1.15	7.7	742	0(0.00%)	0(0.00%)				
Apr	1.14	1.00	.64	4.5	716	0(0.00%)	0(0.00%)				
May	.94	.83	.46	2.9	744	0(0.00%)	0(0.00%)				
Jun	1.00	.87	.53	3.3	720	0(0.00%)	0(0.00%)				
Jul	.87	.77	.41	2.7	741	0(0.00%)	0(0.00%)				
Aug	1.06	.89	.65	5.1	741	0(0.00%)	0(0.00%)				
Sep	1.11	.92	.76	7.7	720	0(0.00%)	0(0.00%)				
Oct	1.16	.95	.77	6.8	742	0(0.00%)	0(0.00%)				
Nov	1.53	1.15	1.17	7.8	716	0(0.00%)	1(1.12%)				
Dec	1.93	1.40	1.75	11.1	742	0(0.00%)	4(4.35%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.3	.4	.4	.7	1.0	1.5	2.4	3.2	5.5	11.4
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
1991	1.30	1.03	1.02	11.4	8735	0(0.00%)	5(0.46%)				

n/a - not applicable

* - no data

CO Summary Statistics for 1991
Edmonton Northwest Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = 13.0 PPM											
Ambient 8-hour average regulation = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.1	.2	.3	.4	.6	1.0	2.0	3.6	4.7	9.4	16.5
Spring	.0	.2	.3	.3	.5	.7	1.0	1.9	2.6	5.1	12.2
Summer	.0	.3	.3	.4	.5	.6	.9	1.3	1.7	2.7	5.5
Autumn	.2	.3	.3	.4	.5	.8	1.4	2.4	3.3	5.9	13.3
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
Winter	1.63	1.11	1.75	16.4	2158	4(0.19%)	10(3.72%)				
Spring	.96	.73	.96	12.2	2108	0(0.00%)	0(0.00%)				
Summer	.76	.63	.51	5.5	2203	0(0.00%)	0(0.00%)				
Autumn	1.16	.86	1.14	13.1	2180	1(0.05%)	2(0.74%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.1	.2	.3	.3	.5	.9	1.7	3.1	4.1	6.3	14.5
Feb	.2	.2	.3	.4	.6	1.0	1.7	3.0	4.0	7.4	13.8
Mar	.2	.2	.4	.4	.6	.9	1.4	2.5	3.5	6.3	12.2
Apr	.0	.2	.2	.3	.4	.6	1.0	1.6	2.1	3.6	8.2
May	.2	.3	.3	.4	.4	.6	.8	1.2	1.6	3.0	5.0
Jun	.3	.3	.3	.4	.5	.6	.9	1.4	1.7	2.7	3.9
Jul	.3	.3	.3	.4	.5	.6	.8	1.1	1.3	1.9	2.6
Aug	.0	.0	.4	.4	.5	.7	1.0	1.5	2.0	3.5	5.5
Sep	.3	.3	.3	.4	.5	.7	1.1	1.9	2.8	5.1	9.0
Oct	.2	.2	.3	.4	.5	.7	1.2	2.1	2.8	4.8	8.2
Nov	.2	.3	.3	.4	.6	1.0	1.8	2.9	4.2	7.3	13.3
Dec	.2	.3	.3	.4	.7	1.3	2.5	4.6	6.1	11.2	16.5
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
Jan	1.40	.98	1.39	14.4	744	1(0.13%)	2(2.15%)				
Feb	1.44	1.04	1.47	13.6	672	2(0.30%)	1(1.19%)				
Mar	1.29	.96	1.27	12.0	742	0(0.00%)	0(0.00%)				
Apr	.83	.63	.79	8.2	624	0(0.00%)	0(0.00%)				
May	.73	.63	.55	4.8	742	0(0.00%)	0(0.00%)				
Jun	.77	.67	.49	3.6	719	0(0.00%)	0(0.00%)				
Jul	.67	.61	.33	2.3	744	0(0.00%)	0(0.00%)				
Aug	.85	.60	.64	5.5	740	0(0.00%)	0(0.00%)				
Sep	.97	.75	.95	8.7	720	0(0.00%)	0(0.00%)				
Oct	1.04	.80	.91	8.0	742	0(0.00%)	0(0.00%)				
Nov	1.48	1.07	1.44	13.1	718	1(0.14%)	2(2.25%)				
Dec	2.02	1.32	2.19	16.3	742	1(0.13%)	7(7.61%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.2	.3	.4	.5	.7	1.2	2.3	3.3	6.2	16.5
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
1991	1.13	.81	1.22	16.5	8649	5(0.06%)	12(1.12%)				

n/a - not applicable

* - no data

Edmonton Northwest Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	0	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	0	0	0	
ENE	1	0	0	0	0	0	0	0	0	1	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	0	0	0	
SSW	0	1	0	0	0	0	0	0	0	1	
SW	0	1	0	0	0	0	0	0	0	1	
WSW	1	0	0	0	0	0	0	0	0	1	
W	1	0	0	0	0	0	0	0	0	1	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	0	0	0	
TOTAL	3	2	0	0	0	0	0	0	0	5	
CALM = 0 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ENE	20.0	.0	.0	.0	.0	.0	.0	.0	.0	20.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSW	.0	20.0	.0	.0	.0	.0	.0	.0	.0	20.0	
SW	.0	20.0	.0	.0	.0	.0	.0	.0	.0	20.0	
WSW	20.0	.0	.0	.0	.0	.0	.0	.0	.0	20.0	
W	20.0	.0	.0	.0	.0	.0	.0	.0	.0	20.0	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
TOTAL	60.0	40.0	.0	.0	.0	.0	.0	.0	.0	100.0	
CALM = .00%											
MISSING DATA = .00%											

Wind Summary for 1991
Edmonton Northwest Monitoring Station

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** calculation is for exceedances of the 8-hour regulation for CO **
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Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	4	1	0	0	0	0	0	0	0	5	
NNE	1	0	0	0	0	0	0	0	0	1	
NE	4	1	0	0	0	0	0	0	0	5	
ENE	6	0	0	0	0	0	0	0	0	6	
E	2	1	0	0	0	0	0	0	0	3	
ESE	7	0	0	0	0	0	0	0	0	7	
SE	4	1	1	0	0	0	0	0	0	6	
SSE	4	1	0	0	0	0	0	0	0	5	
S	10	1	0	0	0	0	0	0	0	11	
SSW	11	4	0	0	0	0	0	0	0	15	
SW	5	7	0	0	0	0	0	0	0	12	
WSW	4	0	0	0	0	0	0	0	0	4	
W	5	1	0	0	0	0	0	0	0	6	
WNW	2	0	0	0	0	0	0	0	0	2	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	0	0	0	
TOTAL	69	18	1	0	0	0	0	0	0	88	
CALM = 8 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	4.2	1.0	.0	.0	.0	.0	.0	.0	.0	5.2
NNE	1.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0
NE	4.2	1.0	.0	.0	.0	.0	.0	.0	.0	5.2
ENE	6.3	.0	.0	.0	.0	.0	.0	.0	.0	6.3
E	2.1	1.0	.0	.0	.0	.0	.0	.0	.0	3.1
ESE	7.3	.0	.0	.0	.0	.0	.0	.0	.0	7.3
SE	4.2	1.0	1.0	.0	.0	.0	.0	.0	.0	6.3
SSE	4.2	1.0	.0	.0	.0	.0	.0	.0	.0	5.2
S	10.4	1.0	.0	.0	.0	.0	.0	.0	.0	11.5
SSW	11.5	4.2	.0	.0	.0	.0	.0	.0	.0	15.6
SW	5.2	7.3	.0	.0	.0	.0	.0	.0	.0	12.5
WSW	4.2	.0	.0	.0	.0	.0	.0	.0	.0	4.2
W	5.2	1.0	.0	.0	.0	.0	.0	.0	.0	6.3
WNW	2.1	.0	.0	.0	.0	.0	.0	.0	.0	2.1
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	71.9	18.8	1.0	.0	.0	.0	.0	.0	.0	91.7
CALM = 8.33%										
MISSING DATA = .00%										

CO Summary Statistics for 1991
Edmonton East Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = 13.0 PPM											
Ambient 8-hour average regulation = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.2	.3	.3	.3	.5	.9	1.5	1.8	2.8	4.8
Spring	.0	.2	.2	.3	.3	.4	.5	.9	1.3	2.1	3.3
Summer	.2	.2	.2	.3	.3	.4	.5	.7	.9	1.2	1.9
Autumn	.0	.2	.2	.2	.3	.4	.6	1.0	1.4	2.5	4.0
-----BY MONTH-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		8 hour			
Winter	.71	.52	.55	4.8	2100	0(0.00%)		0(0.00%)			
Spring	.50	.38	.37	3.3	2141	0(0.00%)		0(0.00%)			
Summer	.42	.39	.22	1.7	2202	0(0.00%)		0(0.00%)			
Autumn	.56	.45	.43	4.0	2178	0(0.00%)		0(0.00%)			
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.2	.3	.3	.5	.9	1.5	1.8	2.6	3.8
Feb	.2	.3	.3	.3	.4	.5	.7	1.3	1.8	2.8	4.8
Mar	.2	.3	.3	.3	.4	.5	.7	1.3	1.8	2.5	3.3
Apr	.0	.0	.2	.2	.3	.4	.5	.9	1.2	1.7	2.5
May	.2	.2	.2	.2	.3	.3	.4	.5	.6	1.1	1.6
Jun	.2	.2	.2	.3	.3	.4	.5	.7	.8	1.1	1.3
Jul	.2	.2	.2	.2	.3	.3	.4	.6	.7	1.0	1.4
Aug	.2	.2	.3	.3	.3	.4	.5	.8	1.0	1.5	1.9
Sep	.2	.2	.2	.2	.3	.4	.5	.8	1.0	1.5	3.3
Oct	.0	.1	.2	.2	.3	.4	.6	1.0	1.3	1.9	2.7
Nov	.2	.2	.3	.3	.4	.5	.8	1.4	1.9	2.8	4.0
Dec	.0	.2	.3	.3	.4	.5	.9	1.5	1.9	2.9	4.4
-----BY MONTH-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		8 hour			
Jan	.71	.46	.54	3.8	688	0(0.00%)		0(0.00%)			
Feb	.66	.55	.53	4.6	669	0(0.00%)		0(0.00%)			
Mar	.67	.55	.50	3.1	681	0(0.00%)		0(0.00%)			
Apr	.46	.29	.33	2.5	716	0(0.00%)		0(0.00%)			
May	.37	.34	.17	1.4	744	0(0.00%)		0(0.00%)			
Jun	.42	.38	.19	1.1	719	0(0.00%)		0(0.00%)			
Jul	.37	.34	.17	1.2	740	0(0.00%)		0(0.00%)			
Aug	.48	.44	.26	1.7	743	0(0.00%)		0(0.00%)			
Sep	.45	.39	.31	3.1	720	0(0.00%)		0(0.00%)			
Oct	.52	.42	.38	2.7	738	0(0.00%)		0(0.00%)			
Nov	.69	.56	.54	3.8	720	0(0.00%)		0(0.00%)			
Dec	.75	.56	.59	4.4	743	0(0.00%)		0(0.00%)			
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.2	.2	.3	.3	.4	.6	1.0	1.4	2.3	4.8
-----BY YEAR-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		8 hour			
1991	.54	.43	.42	4.8	8621	0(0.00%)		0(0.00%)			
-----BY YEAR-----											
n/a - not applicable				* - no data							

CO Summary Statistics for 1991
 Calgary Downtown Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation = 13.0 PPM											
Ambient 8-hour average regulation = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.2	.3	.4	.4	.7	1.2	2.1	3.6	5.3	10.0	20.5
Spring	.2	.3	.4	.5	.6	1.0	1.4	2.0	2.5	3.9	10.4
Summer	.2	.3	.4	.4	.6	.9	1.2	1.8	2.1	3.5	8.3
Autumn	.2	.3	.3	.4	.6	1.1	1.7	2.8	4.0	8.4	16.9
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
Winter	1.78	1.25	1.92	20.3	2140	10(0.47%)	13(4.91%)				
Spring	1.14	.96	.76	10.2	2190	0(0.00%)	0(0.00%)				
Summer	1.01	.86	.66	8.1	2192	0(0.00%)	0(0.00%)				
Autumn	1.48	1.07	1.52	16.7	2172	2(0.09%)	7(2.59%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.2	.3	.4	.4	.7	1.2	2.2	4.0	5.7	13.1	20.5
Feb	.2	.3	.4	.5	.8	1.2	1.8	2.9	3.9	6.8	12.6
Mar	.2	.3	.4	.5	.7	1.2	1.8	2.5	3.1	5.7	10.4
Apr	.2	.3	.4	.5	.6	.9	1.2	1.8	2.2	3.1	4.6
May	.3	.3	.4	.4	.6	.8	1.3	1.7	2.1	2.9	3.8
Jun	.2	.3	.4	.4	.5	.8	1.2	1.7	2.0	3.0	5.1
Jul	.2	.3	.3	.4	.6	.9	1.2	1.7	2.0	3.2	6.9
Aug	.2	.3	.4	.4	.6	.9	1.3	1.9	2.3	4.2	8.3
Sep	.2	.2	.3	.4	.5	.9	1.4	2.2	2.7	4.7	8.8
Oct	.2	.2	.3	.4	.5	1.0	1.5	2.2	3.0	5.3	8.1
Nov	.2	.3	.4	.5	.8	1.4	2.4	4.4	6.9	11.3	16.9
Dec	.2	.3	.3	.4	.6	1.2	2.3	4.4	6.2	10.2	17.6
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
Jan	1.88	1.26	2.19	20.3	742	8(1.08%)	7(7.61%)				
Feb	1.52	1.20	1.27	12.4	658	0(0.00%)	1(1.23%)				
Mar	1.41	1.17	.98	10.2	741	0(0.00%)	0(0.00%)				
Apr	1.01	.87	.60	4.4	716	0(0.00%)	0(0.00%)				
May	.99	.86	.55	3.5	733	0(0.00%)	0(0.00%)				
Jun	.96	.82	.57	4.9	713	0(0.00%)	0(0.00%)				
Jul	1.00	.87	.60	6.7	739	0(0.00%)	0(0.00%)				
Aug	1.07	.89	.77	8.1	740	0(0.00%)	0(0.00%)				
Sep	1.13	.89	.93	8.6	716	0(0.00%)	0(0.00%)				
Oct	1.20	.94	.96	7.9	741	0(0.00%)	0(0.00%)				
Nov	2.11	1.47	2.15	16.7	715	2(0.28%)	7(7.95%)				
Dec	1.91	1.27	2.08	17.4	740	2(0.27%)	5(5.43%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.2	.3	.4	.4	.6	1.0	1.6	2.5	3.5	7.1	20.5
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
1991	1.35	1.02	1.35	20.3	8694	12(0.14%)	20(1.86%)				

n/a - not applicable

* - no data

CO Summary Statistics for 1991
 Calgary Residential Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation = 13.0 PPM											
Ambient 8-hour average regulation = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.1	.2	.2	.3	.4	.6	1.0	2.2	3.6	7.0	11.8
Spring	.1	.3	.3	.3	.4	.5	.7	1.0	1.3	2.4	7.6
Summer	.2	.3	.3	.4	.4	.5	.6	.8	1.0	1.6	3.0
Autumn	.1	.2	.3	.3	.4	.5	.8	1.6	2.3	5.4	12.1

SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	1.00	.66	1.28	11.7	2105	0(0.00%)	6(2.30%)				
Spring	.61	.52	.49	7.5	2201	0(0.00%)	0(0.00%)				
Summer	.56	.52	.25	2.8	2188	0(0.00%)	0(0.00%)				
Autumn	.82	.62	.94	12.0	2113	0(0.00%)	1(0.38%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.1	.1	.2	.2	.3	.5	.9	1.9	3.7	7.2	10.9
Feb	.2	.2	.3	.3	.4	.6	1.0	1.9	3.4	6.3	11.8
Mar	.2	.2	.3	.3	.4	.6	.8	1.3	2.0	4.1	7.6
Apr	.2	.3	.3	.3	.4	.4	.6	.8	1.0	1.7	2.2
May	.1	.2	.3	.3	.4	.5	.6	.8	.9	1.5	2.2
Jun	.2	.3	.3	.3	.4	.5	.6	.8	.9	1.6	2.3
Jul	.3	.3	.4	.4	.4	.5	.6	.8	1.0	1.5	2.6
Aug	.3	.3	.4	.4	.4	.5	.6	.9	1.1	1.9	3.0
Sep	.3	.3	.3	.3	.4	.5	.7	1.0	1.6	2.9	6.2
Oct	.1	.2	.3	.3	.4	.5	.7	1.0	1.4	2.1	4.3
Nov	.2	.3	.3	.3	.5	.7	1.3	2.6	4.1	7.2	12.1
Dec	.2	.2	.3	.3	.4	.6	1.1	2.5	3.7	7.4	9.5

MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	.91	.56	1.28	10.8	696	0(0.00%)	2(2.33%)				
Feb	1.00	.71	1.20	11.6	670	0(0.00%)	1(1.20%)				
Mar	.78	.63	.75	7.4	741	0(0.00%)	0(0.00%)				
Apr	.52	.47	.27	2.0	718	0(0.00%)	0(0.00%)				
May	.52	.48	.23	2.1	742	0(0.00%)	0(0.00%)				
Jun	.51	.48	.22	2.1	715	0(0.00%)	0(0.00%)				
Jul	.56	.53	.22	2.3	736	0(0.00%)	0(0.00%)				
Aug	.60	.55	.29	2.7	737	0(0.00%)	0(0.00%)				
Sep	.63	.53	.55	5.9	715	0(0.00%)	0(0.00%)				
Oct	.61	.53	.41	4.2	681	0(0.00%)	0(0.00%)				
Nov	1.23	.84	1.39	11.9	717	0(0.00%)	1(1.12%)				
Dec	1.09	.72	1.33	9.3	739	0(0.00%)	3(3.26%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.1	.2	.3	.3	.4	.5	.7	1.3	2.0	5.0	12.1

YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1991	.74	.58	.85	12.0	8607	0(0.00%)	7(0.66%)				

n/a - not applicable

* - no data

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
	Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	2	0	0	0	0	0	0	0	0	2	
NNE	2	0	0	0	0	0	0	0	0	2	
NE	3	0	0	0	0	0	0	0	0	3	
ENE	4	0	0	0	0	0	0	0	0	4	
E	2	0	0	0	0	0	0	0	0	2	
ESE	9	1	0	0	0	0	0	0	0	10	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	0	0	
S	2	0	0	0	0	0	0	0	0	2	
SSW	0	0	0	0	0	0	0	0	0	0	
SW	1	0	0	0	0	0	0	0	0	1	
WSW	3	2	0	0	0	0	0	0	0	5	
W	5	4	1	0	0	0	0	0	0	10	
WNW	9	2	0	0	0	0	0	0	0	11	
NW	0	1	0	0	0	0	0	0	0	1	
NNW	0	0	0	0	0	0	0	0	0	0	
TOTAL	42	10	1	0	0	0	0	0	0	53	
CALM = 3 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
	Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	3.6	.0	.0	.0	.0	.0	.0	.0	.0	3.6	
NNE	3.6	.0	.0	.0	.0	.0	.0	.0	.0	3.6	
NE	5.4	.0	.0	.0	.0	.0	.0	.0	.0	5.4	
ENE	7.1	.0	.0	.0	.0	.0	.0	.0	.0	7.1	
E	3.6	.0	.0	.0	.0	.0	.0	.0	.0	3.6	
ESE	16.1	1.8	.0	.0	.0	.0	.0	.0	.0	17.9	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
S	3.6	.0	.0	.0	.0	.0	.0	.0	.0	3.6	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	1.8	.0	.0	.0	.0	.0	.0	.0	.0	1.8	
WSW	5.4	3.6	.0	.0	.0	.0	.0	.0	.0	8.9	
W	8.9	7.1	1.8	.0	.0	.0	.0	.0	.0	17.9	
WNW	16.1	3.6	.0	.0	.0	.0	.0	.0	.0	19.6	
NW	.0	1.8	.0	.0	.0	.0	.0	.0	.0	1.8	
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
TOTAL	75.0	17.9	1.8	.0	.0	.0	.0	.0	.0	94.6	
CALM = 5.36%											
MISSING DATA = .00%											

CO Summary Statistics for 1991
 Calgary Industrial Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation = 13.0 PPM											
Ambient 8-hour average regulation = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.2	.3	.3	.4	.5	1.0	2.1	3.8	5.3	8.9	18.6
Spring	.2	.3	.4	.4	.5	.6	.9	1.6	2.2	3.8	5.8
Summer	.3	.3	.4	.4	.5	.6	.9	1.2	1.5	2.4	3.7
Autumn	.1	.2	.3	.4	.5	.8	1.5	2.7	4.0	7.3	14.8
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	1.67	1.10	1.83	18.4	2088	6(0.29%)	10(3.89%)				
Spring	.85	.71	.66	5.6	2200	0(0.00%)	0(0.00%)				
Summer	.74	.67	.41	3.4	2183	0(0.00%)	0(0.00%)				
Autumn	1.28	.89	1.39	14.7	2160	2(0.09%)	4(1.49%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.3	.3	.3	.4	.5	.9	1.9	3.7	5.4	12.7	18.6
Feb	.2	.3	.3	.4	.6	.9	1.6	2.8	4.5	7.0	8.9
Mar	.3	.3	.4	.4	.6	.8	1.4	2.4	3.0	4.8	5.8
Apr	.2	.3	.3	.4	.4	.5	.8	1.2	1.8	2.8	4.2
May	.3	.3	.4	.4	.5	.6	.8	1.2	1.5	2.0	2.6
Jun	.3	.3	.3	.3	.4	.6	.8	1.1	1.3	1.9	3.0
Jul	.3	.3	.4	.4	.5	.6	.9	1.2	1.5	2.2	3.7
Aug	.3	.3	.4	.4	.5	.7	.9	1.4	1.7	2.8	3.6
Sep	.1	.3	.3	.4	.5	.7	1.1	1.9	2.4	4.8	6.7
Oct	.1	.2	.3	.5	.5	.7	1.1	2.1	2.6	4.1	6.3
Nov	.1	.2	.3	.4	.7	1.1	2.5	4.4	6.0	9.7	14.8
Dec	.2	.3	.3	.4	.6	1.3	2.8	4.5	5.6	8.9	15.4
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	1.67	1.05	2.13	18.3	706	5(0.71%)	4(4.60%)				
Feb	1.35	.97	1.33	8.7	669	0(0.00%)	1(1.20%)				
Mar	1.14	.92	.90	5.5	741	0(0.00%)	0(0.00%)				
Apr	.71	.61	.51	4.0	717	0(0.00%)	0(0.00%)				
May	.71	.64	.36	2.3	742	0(0.00%)	0(0.00%)				
Jun	.67	.60	.34	2.7	714	0(0.00%)	0(0.00%)				
Jul	.74	.67	.39	3.4	741	0(0.00%)	0(0.00%)				
Aug	.82	.73	.46	3.3	728	0(0.00%)	0(0.00%)				
Sep	.94	.75	.79	6.6	715	0(0.00%)	0(0.00%)				
Oct	.97	.75	.85	6.2	732	0(0.00%)	0(0.00%)				
Nov	1.92	1.28	1.97	14.7	713	2(0.28%)	4(4.49%)				
Dec	1.96	1.29	1.86	15.2	713	1(0.14%)	5(5.75%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.1	.3	.3	.4	.5	.7	1.2	2.3	3.4	6.4	18.6
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1991	1.13	.82	1.26	18.5	8631	8(0.09%)	14(1.31%)				

n/a - not applicable

* - no data

Wind Summary for 1991
Calgary Industrial Monitoring Station

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** calculation is for exceedances of the 1-hour regulation for CO **
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Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
	Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	0	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	0	0	0	
ENE	2	0	0	0	0	0	0	0	0	2	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	0	0	
S	1	0	0	0	0	0	0	0	0	1	
SSW	1	0	0	0	0	0	0	0	0	1	
SW	1	0	0	0	0	0	0	0	0	1	
WSW	1	0	0	0	0	0	0	0	0	1	
W	0	0	0	0	0	0	0	0	0	0	
WNW	1	0	0	0	0	0	0	0	0	1	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	1	0	0	0	0	0	0	0	0	1	
TOTAL	8	0	0	0	0	0	0	0	0	8	
CALM = 0 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	25.0	.0	.0	.0	.0	.0	.0	.0	.0	25.0
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
S	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
SSW	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
SW	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
WSW	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
TOTAL	100.0	.0	.0	.0	.0	.0	.0	.0	.0	100.0
CALM =	.00%									
MISSING DATA =	.00%									

Calgary Industrial Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	2	0	0	2	0	0	0	0	0	4
NNE	1	0	0	2	0	0	0	0	0	3
NE	2	0	0	0	0	0	0	0	0	2
ENE	4	1	0	0	0	0	0	0	0	5
E	6	0	0	0	0	0	0	0	0	6
ESE	5	1	0	0	0	0	0	0	0	6
SE	5	0	0	0	0	0	0	0	0	5
SSE	10	0	0	0	0	0	0	0	0	10
S	15	0	0	0	0	0	0	0	0	15
SSW	14	1	0	0	0	0	0	0	0	15
SW	13	1	0	0	0	0	0	0	0	14
WSW	6	1	0	0	0	0	0	0	0	7
W	7	0	0	0	0	0	0	0	0	7
WNW	6	0	0	0	0	0	0	0	0	6
NW	3	0	0	0	0	0	0	0	0	3
NNW	2	0	0	0	0	0	0	0	0	2
TOTAL	101	5	0	4	0	0	0	0	0	110
CALM = 2 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	1.8	.0	.0	1.8	.0	.0	.0	.0	.0	3.6
NNE	.9	.0	.0	1.8	.0	.0	.0	.0	.0	2.7
NE	1.8	.0	.0	.0	.0	.0	.0	.0	.0	1.8
ENE	3.6	.9	.0	.0	.0	.0	.0	.0	.0	4.5
E	5.4	.0	.0	.0	.0	.0	.0	.0	.0	5.4
ESE	4.5	.9	.0	.0	.0	.0	.0	.0	.0	5.4
SE	4.5	.0	.0	.0	.0	.0	.0	.0	.0	4.5
SSE	8.9	.0	.0	.0	.0	.0	.0	.0	.0	8.9
S	13.4	.0	.0	.0	.0	.0	.0	.0	.0	13.4
SSW	12.5	.9	.0	.0	.0	.0	.0	.0	.0	13.4
SW	11.6	.9	.0	.0	.0	.0	.0	.0	.0	12.5
WSW	5.4	.9	.0	.0	.0	.0	.0	.0	.0	6.3
W	6.3	.0	.0	.0	.0	.0	.0	.0	.0	6.3
WNW	5.4	.0	.0	.0	.0	.0	.0	.0	.0	5.4
NW	2.7	.0	.0	.0	.0	.0	.0	.0	.0	2.7
NNW	1.8	.0	.0	.0	.0	.0	.0	.0	.0	1.8
TOTAL	90.2	4.5	.0	3.6	.0	.0	.0	.0	.0	98.2
CALM = 1.79%										
MISSING DATA = .00%										

CO Summary Statistics for 1991
 Fort Saskatchewan Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation = 13.0 PPM											
Ambient 8-hour average regulation = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.2	.2	.3	.4	.8	1.4	1.9	3.0	7.2
Spring	.0	.0	.2	.2	.3	.3	.4	.7	.9	1.4	3.1
Summer	.0	.1	.2	.2	.2	.3	.4	.5	.6	.8	1.0
Autumn	.0	.0	.1	.2	.2	.3	.5	.9	1.2	2.0	2.8
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
Winter	.66	.31	.66	7.2	2118	0(0.00%)	0(0.00%)				
Spring	.39	.23	.27	3.1	2200	0(0.00%)	0(0.00%)				
Summer	.31	.27	.13	1.0	2206	0(0.00%)	0(0.00%)				
Autumn	.42	.27	.37	2.8	2123	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.1	.2	.3	.3	.8	1.5	1.9	3.8	7.2
Feb	.0	.0	.2	.3	.3	.4	.6	1.1	1.5	2.7	6.8
Mar	.1	.2	.2	.2	.3	.4	.6	.9	1.1	2.0	3.0
Apr	.1	.1	.2	.2	.2	.3	.4	.5	.6	1.0	3.1
May	.0	.0	.0	.2	.2	.3	.4	.5	.7	1.0	1.8
Jun	.1	.2	.2	.2	.2	.3	.4	.4	.5	.7	.8
Jul	.0	.0	.1	.2	.2	.3	.3	.4	.5	.7	1.0
Aug	.1	.1	.1	.2	.2	.3	.4	.5	.6	.8	1.0
Sep	.1	.1	.2	.2	.2	.3	.4	.7	.9	1.3	2.0
Oct	.0	.1	.1	.1	.2	.2	.4	.8	1.1	1.8	2.8
Nov	.0	.0	.1	.1	.2	.3	.6	1.1	1.5	2.2	2.6
Dec	.0	.0	.2	.2	.3	.5	1.0	1.8	2.1	2.8	4.5
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
Jan	.64	.33	.75	7.2	741	0(0.00%)	0(0.00%)				
Feb	.56	.28	.52	6.8	672	0(0.00%)	0(0.00%)				
Mar	.50	.43	.35	2.9	741	0(0.00%)	0(0.00%)				
Apr	.35	.31	.20	3.0	717	0(0.00%)	0(0.00%)				
May	.32	.21	.19	1.8	742	0(0.00%)	0(0.00%)				
Jun	.31	.29	.11	.7	718	0(0.00%)	0(0.00%)				
Jul	.29	.22	.13	1.0	744	0(0.00%)	0(0.00%)				
Aug	.34	.31	.16	.9	744	0(0.00%)	0(0.00%)				
Sep	.36	.31	.26	1.9	719	0(0.00%)	0(0.00%)				
Oct	.38	.28	.35	2.8	742	0(0.00%)	0(0.00%)				
Nov	.51	.29	.47	2.6	662	0(0.00%)	0(0.00%)				
Dec	.78	.48	.65	4.5	705	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.2	.2	.2	.3	.5	.9	1.2	2.2	7.2
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	8 hour				
1991	.44	.27	.42	7.2	8647	0(0.00%)	0(0.00%)				

n/a - not applicable

* - no data

CO Summary Statistics for 1991
 Fort McMurray Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation = 13.0 PPM											
Ambient 8-hour average regulation = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.3	.3	.4	.5	.7	1.0	1.4	2.5	4.4
Spring	.2	.3	.3	.3	.3	.4	.5	.8	1.1	1.9	5.4
Summer	.0	.2	.3	.3	.4	.5	.6	.7	.9	1.2	2.1
Autumn	.1	.2	.2	.2	.3	.3	.5	.8	1.0	1.6	3.4

SEASON	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
	Mean		Mean		Std Dev				1 hour	8 hour	
Winter	.58		.31		.45		4.4	1986	0(0.00%)	0(0.00%)	
Spring	.49		.43		.35		5.2	2205	0(0.00%)	0(0.00%)	
Summer	.52		.46		.21		2.1	2201	0(0.00%)	0(0.00%)	
Autumn	.46		.40		.29		3.3	2180	0(0.00%)	0(0.00%)	
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.1	.1	.3	.3	.4	.5	.7	1.0	1.3	2.2	3.0
Feb	.0	.1	.3	.3	.3	.4	.7	1.2	1.6	3.0	4.4
Mar	.3	.3	.3	.3	.4	.5	.7	1.2	1.5	2.6	5.4
Apr	.2	.3	.3	.3	.3	.3	.4	.6	.7	1.1	1.9
May	.2	.2	.3	.3	.3	.4	.4	.6	.8	1.1	1.9
Jun	.0	.2	.2	.3	.3	.4	.5	.6	.7	1.0	1.2
Jul	.2	.2	.3	.3	.3	.4	.5	.7	.8	1.0	1.4
Aug	.5	.5	.5	.5	.6	.6	.7	.8	1.0	1.5	2.1
Sep	.2	.2	.2	.2	.3	.3	.5	.7	.9	1.1	1.7
Oct	.2	.2	.2	.2	.3	.3	.5	.7	1.0	1.5	2.1
Nov	.1	.1	.3	.3	.3	.4	.6	.9	1.0	2.5	3.4
Dec	.0	.0	.0	.3	.3	.5	.6	.9	1.0	2.1	3.1

MONTH	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
	Mean		Mean		Std Dev				1 hour	8 hour	
Jan	.61		.54		.36		2.9	665	0(0.00%)	0(0.00%)	
Feb	.62		.43		.55		4.4	669	0(0.00%)	0(0.00%)	
Mar	.66		.55		.52		5.1	744	0(0.00%)	0(0.00%)	
Apr	.40		.38		.18		1.7	720	0(0.00%)	0(0.00%)	
May	.42		.39		.18		1.7	741	0(0.00%)	0(0.00%)	
Jun	.43		.36		.16		1.2	715	0(0.00%)	0(0.00%)	
Jul	.45		.43		.16		1.2	742	0(0.00%)	0(0.00%)	
Aug	.67		.65		.19		1.6	744	0(0.00%)	0(0.00%)	
Sep	.41		.38		.21		1.5	719	0(0.00%)	0(0.00%)	
Oct	.43		.38		.27		1.9	742	0(0.00%)	0(0.00%)	
Nov	.52		.45		.37		3.3	719	0(0.00%)	0(0.00%)	
Dec	.52		.32		.39		3.1	652	0(0.00%)	0(0.00%)	
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.1	.3	.3	.3	.4	.6	.8	1.0	1.9	5.4

YEAR	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
	Mean		Mean		Std Dev				1 hour	8 hour	
1991	.51		.40		.34		5.4	8572	0(0.00%)	0(0.00%)	

n/a - not applicable

* - no data

Annual Average Concentration									
Year: 1991									
Pollutant: CO [ppm]									

Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort	Fort	
							Sask.	McMurray	

1976	1.57	1.86	0.64	2.11	1.25	1.78	*	*	
1977	2.01	1.50	0.36	2.36	1.37	1.60	*	*	
1978	2.05	1.34	0.33	2.77	1.17	1.51	*		
1979	3.28	1.75	0.39	2.88	1.05	1.68	*	0.40a	
1980	2.97	1.78	0.66	2.34	1.08	1.25	*	0.37	
1981	2.18	1.62	1.01	2.33	1.04	1.96	b	0.48	
1982	1.89	1.04	0.91	2.01	0.99	1.37	0.89	0.54	
1983	1.78	1.22	0.85	2.10	1.09	1.33	0.71	b	
1984	1.63	1.15	0.78	1.84	0.93	1.22	0.65	0.32a	
1985	1.51	0.95	0.73	1.68	0.82	1.12	0.58	0.20	
1986	1.55	1.27	0.57	1.90	0.89	1.34	0.79	0.34	
1987	1.67	1.48	0.61	1.69	0.75	1.30	0.98	0.54	
1988	1.50	1.27	0.56	1.68	0.72	1.39	0.74	0.54	
1989	1.65	1.16	0.57	1.48	0.68	1.21	0.44a	0.46	
1990	1.42	1.07	0.54	1.26	0.62	1.06	0.45	0.59	
1991	1.30	1.13	0.54	1.35	0.74	1.13	0.44	0.51	

a ≥ 50% to < 75% of data available

b less than 50% of data available

* no data available

CO2 Summary Statistics for 1991
 Calgary Downtown Monitoring Station
 Units are PPM (parts per million)

No regulations											

BY SEASON											

SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	354.	359.	365.	369.	377.	390.	413.	444.	473.	533.	589.
Spring	342.	350.	356.	359.	366.	376.	387.	403.	415.	444.	505.
Summer	322.	331.	338.	342.	349.	358.	373.	391.	405.	425.	452.
Autumn	329.	336.	343.	346.	355.	372.	393.	419.	443.	493.	591.
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	401.0	399.5	35.6	235.	735	n/a					
Spring	379.0	378.5	19.3	163.	2056	n/a					
Summer	362.8	362.3	20.3	130.	2082	n/a					
Autumn	378.7	377.4	32.9	262.	2100	n/a					

BY MONTH											

MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	*	*	*	*	*	*	*	*	*	*	*
Feb	*	*	*	*	*	*	*	*	*	*	*
Mar	345.	351.	363.	368.	374.	383.	397.	414.	428.	460.	505.
Apr	350.	351.	356.	359.	363.	372.	383.	398.	410.	429.	486.
May	342.	346.	353.	357.	363.	371.	380.	390.	398.	419.	467.
Jun	322.	327.	337.	342.	349.	357.	367.	378.	386.	405.	432.
Jul	326.	332.	338.	342.	350.	358.	374.	397.	408.	426.	448.
Aug	327.	332.	337.	341.	347.	360.	377.	396.	409.	426.	452.
Sep	329.	333.	337.	340.	346.	356.	371.	390.	400.	435.	459.
Oct	340.	342.	345.	349.	354.	368.	387.	410.	424.	461.	495.
Nov	343.	346.	355.	361.	374.	391.	414.	448.	474.	526.	591.
Dec	354.	359.	365.	369.	377.	390.	413.	444.	473.	533.	589.
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	*	*	*	*	*	*					
Feb	*	*	*	*	*	*					
Mar	388.0	387.5	21.5	160.	686	n/a					
Apr	375.8	375.5	17.3	136.	708	n/a					
May	372.9	372.6	14.9	125.	662	n/a					
Jun	359.1	358.8	15.3	110.	612	n/a					
Jul	364.1	363.5	21.3	122.	734	n/a					
Aug	364.6	364.0	22.4	125.	736	n/a					
Sep	361.6	361.1	20.9	130.	650	n/a					
Oct	374.4	373.6	26.0	155.	737	n/a					
Nov	398.8	397.2	37.4	248.	713	n/a					
Dec	401.0	399.5	35.6	235.	735	n/a					

BY YEAR											

YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	322.	334.	343.	347.	357.	371.	388.	410.	428.	479.	591.
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	376.4	375.4	28.5	259.	6973	n/a					

n/a - not applicable

* - no data

CO2 Summary Statistics for 1991
 Calgary Mobile Monitoring Station (Springbank)
 Units are PPM (parts per million)

No regulations											

--BY SEASON--											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	347.	348.	349.	350.	352.	356.	361.	368.	372.	386.	421.
Spring	*	*	*	*	*	*	*	*	*	*	*
Summer	326.	332.	339.	343.	351.	367.	391.	421.	433.	461.	510.
Autumn	331.	340.	346.	350.	355.	364.	373.	384.	393.	407.	430.
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	357.8	357.7	8.3	74.	737	n/a					
Spring	*	*	*	*	*	*					
Summer	374.4	373.2	30.5	184.	731	n/a					
Autumn	365.6	365.3	14.0	99.	2143	n/a					

MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	*	*	*	*	*	*	*	*	*	*	*
Feb	*	*	*	*	*	*	*	*	*	*	*
Mar	*	*	*	*	*	*	*	*	*	*	*
Apr	*	*	*	*	*	*	*	*	*	*	*
May	*	*	*	*	*	*	*	*	*	*	*
Jun	*	*	*	*	*	*	*	*	*	*	*
Jul	*	*	*	*	*	*	*	*	*	*	*
Aug	326.	332.	339.	343.	351.	367.	391.	421.	433.	461.	510.
Sep	331.	337.	343.	345.	352.	362.	382.	396.	402.	412.	430.
Oct	342.	344.	349.	352.	356.	364.	373.	380.	387.	398.	404.
Nov	340.	345.	350.	352.	357.	364.	371.	377.	380.	386.	388.
Dec	347.	348.	349.	350.	352.	356.	361.	368.	372.	386.	421.
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	*	*	*	*	*	*					
Feb	*	*	*	*	*	*					
Mar	*	*	*	*	*	*					
Apr	*	*	*	*	*	*					
May	*	*	*	*	*	*					
Jun	*	*	*	*	*	*					
Jul	*	*	*	*	*	*					
Aug	374.4	373.2	30.5	184.	731	n/a					
Sep	366.9	366.4	19.2	99.	693	n/a					
Oct	365.6	365.4	11.7	62.	738	n/a					
Nov	364.3	364.1	9.4	48.	712	n/a					
Dec	357.8	357.7	8.3	74.	737	n/a					

--BY YEAR--											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	326.	337.	345.	349.	354.	361.	373.	388.	402.	433.	510.
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	365.8	365.3	18.6	184.	3611	n/a					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

Annual Average Concentration				
Year: 1991				
Pollutant: CO2 [ppm]				

Year CDMU Springbank				

1976 * *				
1977 * *				
1978 * *				
1979 * *				
1980 * *				
1981 * *				
1982 * *				
1983 * *				
1984 * *				
1985 * *				
1986 * *				
1987 * *				
1988 * *				
1989 * *				
1990 * *				
1991 376 366				

a ≥ 50% to < 75% of data available
b less than 50% of data available
* no data available

COH Summary Statistics for 1991
Edmonton Central Monitoring Station
Units are COH units

Ambient regulation = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.1	.2	.3	.6	.8	1.2	3.0
Spring	.0	.0	.0	.0	.1	.2	.3	.4	.6	1.0	1.5
Summer	.0	.0	.0	.0	.1	.2	.3	.4	.5	.8	1.7
Autumn	.0	.0	.0	.0	.1	.1	.3	.4	.6	.9	2.1
SEASON Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean	Std Dev								
Winter	.26	.07	.27	3.0	2160	44(2.04%)					
Spring	.21	.08	.20	1.5	2208	20(0.91%)					
Summer	.20	.07	.18	1.7	2205	7(0.32%)					
Autumn	.20	.07	.20	2.1	2184	12(0.55%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.2	.4	.6	.7	1.2	1.3
Feb	.0	.0	.0	.0	.1	.2	.3	.5	.7	1.0	3.0
Mar	.0	.0	.0	.0	.1	.2	.3	.5	.8	1.1	1.4
Apr	.0	.0	.0	.0	.1	.1	.3	.4	.6	.9	1.5
May	.0	.0	.0	.0	.1	.2	.2	.4	.4	.8	1.3
Jun	.0	.0	.0	.0	.1	.1	.3	.4	.5	.7	1.1
Jul	.0	.0	.0	.0	.1	.2	.2	.3	.5	.7	1.6
Aug	.0	.0	.0	.0	.1	.2	.3	.5	.7	.9	1.7
Sep	.0	.0	.0	.0	.1	.1	.2	.4	.6	1.0	2.0
Oct	.0	.0	.0	.0	.1	.1	.2	.4	.5	.9	2.1
Nov	.0	.0	.0	.0	.1	.2	.3	.5	.6	.8	1.3
Dec	.0	.0	.0	.0	.1	.2	.3	.7	1.0	1.5	2.0
MONTH Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean	Std Dev								
Jan	.25	.06	.24	1.3	744	12(1.61%)					
Feb	.24	.08	.24	3.0	672	5(0.74%)					
Mar	.24	.09	.24	1.4	744	13(1.75%)					
Apr	.19	.06	.19	1.5	720	5(0.69%)					
May	.19	.09	.16	1.3	744	2(0.27%)					
Jun	.19	.06	.16	1.1	720	1(0.14%)					
Jul	.19	.08	.16	1.6	741	2(0.27%)					
Aug	.23	.09	.21	1.7	744	4(0.54%)					
Sep	.19	.05	.21	2.0	720	5(0.69%)					
Oct	.19	.07	.18	2.1	744	2(0.27%)					
Nov	.22	.09	.19	1.3	720	5(0.69%)					
Dec	.28	.07	.32	2.0	744	27(3.63%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.1	.2	.3	.5	.6	1.0	3.0
YEAR Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean	Std Dev								
1991	.22	.07	.22	3.0	8757	83(0.95%)					

n/a - not applicable

* - no data

COH Summary Statistics for 1991
Edmonton Northwest Monitoring Station
Units are COH units

Ambient regulation = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.1	.2	.5	.9	1.3	2.0	3.2
Spring	.0	.0	.0	.0	.0	.1	.3	.5	.7	1.2	3.1
Summer	.0	.0	.0	.0	.0	.1	.2	.4	.5	.9	2.0
Autumn	.0	.0	.0	.0	.1	.2	.4	.6	.9	1.5	3.2
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.35	.05	.43	3.2	2160	154(7.13%)					
Spring	.19	.02	.26	3.1	2208	45(2.04%)					
Summer	.15	.01	.19	2.0	2207	10(0.45%)					
Autumn	.27	.04	.32	3.2	2184	71(3.25%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.0	.2	.5	.8	1.0	1.5	3.2
Feb	.0	.0	.0	.0	.1	.2	.4	.8	1.1	1.7	2.0
Mar	.0	.0	.0	.0	.0	.2	.4	.7	.9	1.4	2.0
Apr	.0	.0	.0	.0	.0	.1	.2	.4	.6	1.0	2.0
May	.0	.0	.0	.0	.0	.1	.2	.3	.5	1.1	3.1
Jun	.0	.0	.0	.0	.0	.1	.2	.3	.5	.7	1.1
Jul	.0	.0	.0	.0	.0	.1	.2	.3	.4	.9	1.6
Aug	.0	.0	.0	.0	.0	.1	.3	.5	.6	1.0	2.0
Sep	.0	.0	.0	.0	.0	.1	.3	.6	.8	1.3	2.5
Oct	.0	.0	.0	.0	.1	.2	.3	.6	.8	1.6	3.2
Nov	.0	.0	.0	.0	.1	.2	.4	.8	1.0	1.6	2.1
Dec	.0	.0	.0	.0	.1	.3	.6	1.1	1.5	2.4	2.9
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.31	.03	.39	3.2	744	35(4.70%)					
Feb	.29	.04	.36	2.0	672	40(5.95%)					
Mar	.27	.04	.31	2.0	744	27(3.63%)					
Apr	.17	.01	.22	2.0	720	7(0.97%)					
May	.14	.01	.24	3.1	744	11(1.48%)					
Jun	.14	.02	.16	1.1	720	1(0.14%)					
Jul	.12	.01	.17	1.6	744	2(0.27%)					
Aug	.19	.03	.23	2.0	743	7(0.94%)					
Sep	.23	.03	.28	2.5	720	17(2.36%)					
Oct	.26	.04	.33	3.2	744	22(2.96%)					
Nov	.32	.06	.34	2.1	720	32(4.44%)					
Dec	.44	.08	.50	2.9	744	79(10.62%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.0	.1	.3	.6	.9	1.5	3.2
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1991	.24	.02	.32	3.2	8759	280(3.20%)					

n/a - not applicable

* - no data

Wind Summary for 1991

Edmonton Northwest Monitoring Station

** calculation is for values greater than 1.0 COH unit **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	7	0	0	0	0	0	0	0	0	7
NNE	4	0	0	0	0	0	0	0	0	4
NE	2	0	0	0	0	0	0	0	0	2
ENE	9	0	0	0	0	0	0	0	0	9
E	6	1	0	0	0	0	0	0	0	7
ESE	7	0	0	0	0	0	0	0	0	7
SE	8	0	0	0	0	0	0	0	0	8
SSE	10	4	2	0	0	0	0	0	0	16
S	23	4	0	0	0	0	0	0	0	27
SSW	23	17	0	0	0	0	0	0	0	40
SW	26	30	1	0	0	0	0	0	0	57
WSW	19	19	1	0	0	0	0	0	0	39
W	14	4	1	0	0	0	0	0	0	19
WNW	3	1	0	0	0	1	1	0	0	6
NW	4	2	0	0	0	0	1	2	0	9
NNW	5	0	0	0	0	0	0	0	0	5
TOTAL	170	82	5	0	0	1	2	2	0	262
CALM = 18 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	2.5	.0	.0	.0	.0	.0	.0	.0	.0	2.5
NNE	1.4	.0	.0	.0	.0	.0	.0	.0	.0	1.4
NE	.7	.0	.0	.0	.0	.0	.0	.0	.0	.7
ENE	3.2	.0	.0	.0	.0	.0	.0	.0	.0	3.2
E	2.1	.4	.0	.0	.0	.0	.0	.0	.0	2.5
ESE	2.5	.0	.0	.0	.0	.0	.0	.0	.0	2.5
SE	2.9	.0	.0	.0	.0	.0	.0	.0	.0	2.9
SSE	3.6	1.4	.7	.0	.0	.0	.0	.0	.0	5.7
S	8.2	1.4	.0	.0	.0	.0	.0	.0	.0	9.6
SSW	8.2	6.1	.0	.0	.0	.0	.0	.0	.0	14.3
SW	9.3	10.7	.4	.0	.0	.0	.0	.0	.0	20.4
WSW	6.8	6.8	.4	.0	.0	.0	.0	.0	.0	13.9
W	5.0	1.4	.4	.0	.0	.0	.0	.0	.0	6.8
WNW	1.1	.4	.0	.0	.0	.4	.4	.0	.0	2.1
NW	1.4	.7	.0	.0	.0	.0	.4	.7	.0	3.2
NNW	1.8	.0	.0	.0	.0	.0	.0	.0	.0	1.8
TOTAL	60.7	29.3	1.8	.0	.0	.4	.7	.7	.0	93.6
CALM = 6.43%										
MISSING DATA = .00%										

COH Summary Statistics for 1991
Edmonton East Monitoring Station
Units are COH units

Ambient regulation = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.0	.2	.4	.8	1.1	1.6	2.7
Spring	.0	.0	.0	.0	.0	.1	.2	.5	.8	1.3	2.8
Summer	.0	.0	.0	.0	.0	.1	.3	.5	.7	1.1	1.8
Autumn	.0	.0	.0	.0	.0	.1	.3	.6	.8	1.3	2.6
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.30	.03	.37	2.7	2160	122(5.65%)					
Spring	.20	.02	.27	2.8	2131	49(2.30%)					
Summer	.19	.02	.23	1.8	2095	28(1.34%)					
Autumn	.24	.03	.29	2.6	2168	63(2.91%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.2	.4	.8	1.2	1.7	2.1
Feb	.0	.0	.0	.0	.0	.1	.3	.7	1.0	1.5	2.1
Mar	.0	.0	.0	.0	.0	.1	.4	.8	1.0	1.4	1.8
Apr	.0	.0	.0	.0	.0	.1	.3	.5	.7	1.4	2.8
May	.0	.0	.0	.0	.0	.1	.2	.3	.4	1.0	1.7
Jun	.0	.0	.0	.0	.0	.1	.2	.4	.5	1.0	1.5
Jul	.0	.0	.0	.0	.0	.1	.2	.4	.6	.9	1.3
Aug	.0	.0	.0	.0	.1	.2	.3	.6	.8	1.3	1.8
Sep	.0	.0	.0	.0	.0	.1	.3	.5	.7	1.2	2.6
Oct	.0	.0	.0	.0	.0	.1	.3	.6	.8	1.2	2.0
Nov	.0	.0	.0	.0	.0	.2	.4	.7	.9	1.3	1.7
Dec	.0	.0	.0	.0	.0	.2	.5	.9	1.1	1.5	2.7
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.32	.04	.39	2.1	744	50(6.72%)					
Feb	.25	.02	.34	2.1	672	31(4.61%)					
Mar	.27	.03	.33	1.8	668	32(4.79%)					
Apr	.20	.03	.28	2.8	719	14(1.95%)					
May	.14	.02	.18	1.7	744	3(0.40%)					
Jun	.15	.01	.21	1.5	693	7(1.01%)					
Jul	.17	.02	.20	1.3	700	4(0.57%)					
Aug	.24	.04	.27	1.8	702	17(2.42%)					
Sep	.21	.02	.28	2.6	720	12(1.67%)					
Oct	.23	.03	.28	2.0	728	22(3.02%)					
Nov	.26	.03	.31	1.7	720	29(4.03%)					
Dec	.33	.03	.38	2.7	744	41(5.51%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.0	.1	.3	.6	.9	1.4	2.8
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1991	.23	.02	.30	2.8	8554	262(3.06%)					

n/a - not applicable											

n/a - not applicable

* - no data

** calculation is for values greater than 1.0 COH unit **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	8	0	0	0	0	0	0	0	0	8
NNE	8	0	0	0	0	0	0	0	0	8
NE	4	0	0	0	0	0	0	0	0	4
ENE	1	0	0	0	0	0	0	0	0	1
E	3	0	0	1	0	0	0	0	0	4
ESE	1	0	0	0	0	0	0	0	0	1
SE	3	0	0	0	0	0	0	0	0	3
SSE	2	0	0	0	0	0	0	1	0	3
S	10	6	5	0	0	0	0	0	0	21
SSW	21	39	49	5	0	0	0	0	0	114
SW	20	17	12	2	0	0	0	0	0	51
WSW	8	2	1	0	0	0	0	0	0	11
W	1	0	0	0	0	0	0	0	0	1
WNW	3	0	1	0	0	0	0	0	0	4
NW	0	0	1	0	0	0	0	0	0	1
NNW	5	0	0	0	2	0	0	0	0	7
TOTAL	98	64	69	8	2	0	0	1	0	242
CALM = 3 hours										
MISSING DATA = 17 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	3.1	.0	.0	.0	.0	.0	.0	.0	.0	3.1
NNE	3.1	.0	.0	.0	.0	.0	.0	.0	.0	3.1
NE	1.5	.0	.0	.0	.0	.0	.0	.0	.0	1.5
ENE	.4	.0	.0	.0	.0	.0	.0	.0	.0	.4
E	1.1	.0	.0	.4	.0	.0	.0	.0	.0	1.5
ESE	.4	.0	.0	.0	.0	.0	.0	.0	.0	.4
SE	1.1	.0	.0	.0	.0	.0	.0	.0	.0	1.1
SSE	.8	.0	.0	.0	.0	.0	.0	.4	.0	1.1
S	3.8	2.3	1.9	.0	.0	.0	.0	.0	.0	8.0
SSW	8.0	14.9	18.7	1.9	.0	.0	.0	.0	.0	43.5
SW	7.6	6.5	4.6	.8	.0	.0	.0	.0	.0	19.5
WSW	3.1	.8	.4	.0	.0	.0	.0	.0	.0	4.2
W	.4	.0	.0	.0	.0	.0	.0	.0	.0	.4
WNW	1.1	.0	.4	.0	.0	.0	.0	.0	.0	1.5
NW	.0	.0	.4	.0	.0	.0	.0	.0	.0	.4
NNW	1.9	.0	.0	.0	.8	.0	.0	.0	.0	2.7
TOTAL	37.4	24.4	26.3	3.1	.8	.0	.0	.4	.0	92.4
CALM = 1.15%										
MISSING DATA = 6.49%										

COH Summary Statistics for 1991
 Calgary Downtown Monitoring Station
 Units are COH units

Ambient regulation = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.1	.2	.3	.6	.8	1.4	3.4
Spring	.0	.0	.0	.0	.1	.2	.3	.4	.5	.7	1.2
Summer	.0	.0	.0	.0	.1	.2	.3	.4	.4	.7	.9
Autumn	.0	.0	.0	.0	.1	.2	.3	.5	.7	1.4	2.8
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
Winter	.27	.07	.31	3.4	2155	65(3.02%)					
Spring	.18	.06	.16	1.2	2195	4(0.18%)					
Summer	.18	.07	.14	.9	2200	0(0.00%)					
Autumn	.24	.04	.28	2.8	2164	50(2.31%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.2	.4	.6	1.0	1.7	3.4
Feb	.0	.0	.0	.0	.1	.2	.3	.5	.6	.9	1.9
Mar	.0	.0	.0	.0	.1	.2	.3	.4	.5	.8	1.2
Apr	.0	.0	.0	.0	.1	.1	.2	.3	.4	.7	.9
May	.0	.0	.0	.0	.0	.1	.2	.3	.4	.6	.9
Jun	.0	.0	.0	.0	.0	.1	.2	.3	.4	.5	.7
Jul	.0	.0	.0	.0	.1	.2	.3	.4	.5	.6	.8
Aug	.0	.0	.0	.0	.1	.2	.3	.4	.5	.7	.9
Sep	.0	.0	.0	.0	.0	.1	.3	.4	.5	.7	.9
Oct	.0	.0	.0	.0	.1	.2	.3	.4	.6	1.0	1.8
Nov	.0	.0	.0	.0	.1	.2	.4	.8	1.1	1.7	2.8
Dec	.0	.0	.0	.0	.0	.2	.3	.6	.9	1.4	2.2
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
Jan	.31	.11	.38	3.4	744	35(4.70%)					
Feb	.24	.10	.21	1.9	668	6(0.90%)					
Mar	.22	.11	.17	1.2	734	4(0.54%)					
Apr	.17	.05	.15	.9	719	0(0.00%)					
May	.16	.04	.14	.9	742	0(0.00%)					
Jun	.14	.04	.12	.7	718	0(0.00%)					
Jul	.20	.09	.14	.8	739	0(0.00%)					
Aug	.21	.09	.16	.9	743	0(0.00%)					
Sep	.18	.03	.17	.9	719	0(0.00%)					
Oct	.20	.04	.21	1.8	725	7(0.97%)					
Nov	.33	.07	.38	2.8	720	43(5.97%)					
Dec	.25	.03	.30	2.2	743	24(3.23%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.1	.2	.3	.4	.6	1.1	3.4
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
1991	.22	.06	.24	3.4	8714	119(1.37%)					

n/a - not applicable

* - no data

COH Summary Statistics for 1991
 Calgary Residential Monitoring Station
 Units are COH units

Ambient regulation = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.0	.0	.1	.2	.3	.7	2.0
Spring	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.6
Summer	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.3
Autumn	.0	.0	.0	.0	.0	.0	.1	.1	.2	.4	1.3
SEASON Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean	Std Dev								
Winter	.08	.00	.14	2.0	2143	4(0.19%)					
Spring	.06	.00	.06	.6	2208	0(0.00%)					
Summer	.03	.00	.04	.3	2208	0(0.00%)					
Autumn	.04	.00	.09	1.3	2122	2(0.09%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.0	.1	.1	.2	.4	.8	1.1
Feb	.0	.0	.0	.0	.0	.0	.1	.2	.3	.7	1.0
Mar	.0	.0	.0	.0	.0	.1	.1	.1	.2	.4	.6
Apr	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.3
May	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.4
Jun	.0	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3
Jul	.0	.0	.0	.0	.0	.0	.1	.1	.1	.1	.2
Aug	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.3
Sep	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.4
Oct	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.5
Nov	.0	.0	.0	.0	.0	.0	.1	.2	.3	.6	1.3
Dec	.0	.0	.0	.0	.0	.0	.1	.2	.3	.5	2.0
MONTH Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean	Std Dev								
Jan	.11	.01	.16	1.1	744	2(0.27%)					
Feb	.09	.00	.13	1.0	672	0(0.00%)					
Mar	.07	.01	.08	.6	744	0(0.00%)					
Apr	.05	.01	.05	.3	720	0(0.00%)					
May	.05	.00	.05	.4	744	0(0.00%)					
Jun	.02	.00	.04	.3	720	0(0.00%)					
Jul	.04	.00	.04	.2	744	0(0.00%)					
Aug	.04	.00	.05	.3	744	0(0.00%)					
Sep	.04	.00	.05	.4	663	0(0.00%)					
Oct	.04	.00	.06	.5	739	0(0.00%)					
Nov	.07	.00	.13	1.3	720	2(0.28%)					
Dec	.06	.00	.13	2.0	727	2(0.28%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.0	.0	.1	.1	.2	.4	2.0
YEAR Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean	Std Dev								
1991	.05	.00	.09	2.0	8681	6(0.07%)					

n/a - not applicable

* - no data

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	1	0	0	0	0	0	0	0	0	1	
NNE	0	0	0	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	0	0	0	
SSW	0	0	0	0	0	0	0	0	0	0	
SW	0	0	0	0	0	0	0	0	0	0	
WSW	1	0	0	0	0	0	0	0	0	1	
W	1	0	0	0	0	0	0	0	0	1	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	1	0	0	0	0	0	0	0	0	1	
TOTAL	4	0	0	0	0	0	0	0	0	4	
CALM = 2 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	16.7	.0	.0	.0	.0	.0	.0	.0	.0	16.7	
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WSW	16.7	.0	.0	.0	.0	.0	.0	.0	.0	16.7	
W	16.7	.0	.0	.0	.0	.0	.0	.0	.0	16.7	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	16.7	.0	.0	.0	.0	.0	.0	.0	.0	16.7	
TOTAL	66.7	.0	.0	.0	.0	.0	.0	.0	.0	66.7	
CALM = 33.33%											
MISSING DATA = .00%											

COH Summary Statistics for 1991
 Calgary Industrial Monitoring Station
 Units are COH units

Ambient regulation = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.1	.2	.4	.8	1.2	2.0	4.2
Spring	.0	.0	.0	.0	.0	.1	.2	.3	.5	.8	1.4
Summer	.0	.0	.0	.0	.1	.1	.2	.3	.4	.8	1.4
Autumn	.0	.0	.0	.0	.1	.2	.4	.8	1.1	1.7	4.8
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
Winter	.34	.08	.44	4.2	2160	141(6.53%)					
Spring	.15	.02	.17	1.4	2170	6(0.28%)					
Summer	.16	.04	.16	1.4	2205	6(0.27%)					
Autumn	.30	.05	.38	4.8	2142	110(5.14%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.2	.4	.8	1.4	2.7	4.2
Feb	.0	.0	.0	.0	.1	.1	.3	.7	1.1	1.7	2.3
Mar	.0	.0	.0	.0	.0	.1	.3	.5	.6	1.0	1.4
Apr	.0	.0	.0	.0	.0	.1	.2	.3	.5	.7	1.0
May	.0	.0	.0	.0	.0	.1	.1	.3	.4	.5	.7
Jun	.0	.0	.0	.0	.0	.1	.2	.3	.3	.5	1.0
Jul	.0	.0	.0	.0	.1	.1	.2	.3	.4	.6	1.4
Aug	.0	.0	.0	.0	.1	.1	.2	.4	.6	.9	1.4
Sep	.0	.0	.0	.0	.1	.1	.3	.6	.8	1.3	1.7
Oct	.0	.0	.0	.0	.1	.1	.3	.5	.7	1.2	1.6
Nov	.0	.0	.0	.0	.1	.3	.6	1.1	1.4	2.1	4.8
Dec	.0	.0	.0	.0	.1	.2	.5	.9	1.1	1.8	3.1
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
Jan	.36	.09	.52	4.2	744	54(7.26%)					
Feb	.28	.07	.37	2.3	672	39(5.80%)					
Mar	.19	.03	.22	1.4	744	6(0.81%)					
Apr	.14	.02	.15	1.0	720	0(0.00%)					
May	.11	.01	.11	.7	706	0(0.00%)					
Jun	.12	.03	.12	1.0	718	0(0.00%)					
Jul	.16	.05	.14	1.4	743	2(0.27%)					
Aug	.20	.07	.19	1.4	744	4(0.54%)					
Sep	.25	.05	.29	1.7	678	20(2.95%)					
Oct	.22	.04	.26	1.6	744	17(2.28%)					
Nov	.42	.08	.51	4.8	720	73(10.14%)					
Dec	.36	.08	.40	3.1	744	48(6.45%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.1	.1	.3	.6	.8	1.6	4.8
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
1991	.23	.04	.32	4.8	8677	263(3.03%)					

n/a - not applicable

* - no data

Wind Summary for 1991
Calgary Industrial Monitoring Station

** calculation is for values greater than 1.0 COH unit **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	2	0	0	0	0	0	0	0	0	2
NNE	2	0	0	0	0	0	0	0	0	2
NE	5	0	0	0	0	0	0	0	0	5
ENE	7	0	0	0	0	0	0	0	0	7
E	12	0	1	0	0	0	0	0	0	13
ESE	13	0	0	0	0	0	0	0	0	13
SE	19	0	0	0	0	0	0	0	0	19
SSE	26	1	0	0	0	0	0	0	0	27
S	27	1	0	0	0	0	0	0	0	28
SSW	41	4	0	0	0	0	0	0	0	45
SW	30	1	0	0	0	0	0	0	0	31
WSW	26	0	0	0	0	0	0	0	0	26
W	16	2	1	0	0	0	0	0	0	19
WNW	10	4	0	0	0	0	0	0	0	14
NW	5	0	0	0	0	0	0	0	0	5
NNW	2	0	0	0	0	0	0	0	0	2
TOTAL	243	13	2	0	0	0	0	0	0	258
CALM = 5 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	.8	.0	.0	.0	.0	.0	.0	.0	.0	.8
NNE	.8	.0	.0	.0	.0	.0	.0	.0	.0	.8
NE	1.9	.0	.0	.0	.0	.0	.0	.0	.0	1.9
ENE	2.7	.0	.0	.0	.0	.0	.0	.0	.0	2.7
E	4.6	.0	.4	.0	.0	.0	.0	.0	.0	4.9
ESE	4.9	.0	.0	.0	.0	.0	.0	.0	.0	4.9
SE	7.2	.0	.0	.0	.0	.0	.0	.0	.0	7.2
SSE	9.9	.4	.0	.0	.0	.0	.0	.0	.0	10.3
S	10.3	.4	.0	.0	.0	.0	.0	.0	.0	10.6
SSW	15.6	1.5	.0	.0	.0	.0	.0	.0	.0	17.1
SW	11.4	.4	.0	.0	.0	.0	.0	.0	.0	11.8
WSW	9.9	.0	.0	.0	.0	.0	.0	.0	.0	9.9
W	6.1	.8	.4	.0	.0	.0	.0	.0	.0	7.2
WNW	3.8	1.5	.0	.0	.0	.0	.0	.0	.0	5.3
NW	1.9	.0	.0	.0	.0	.0	.0	.0	.0	1.9
NNW	.8	.0	.0	.0	.0	.0	.0	.0	.0	.8
TOTAL	92.4	4.9	.8	.0	.0	.0	.0	.0	.0	98.1
CALM = 1.90%										
MISSING DATA = .00%										

COH Summary Statistics for 1991
Fort Saskatchewan Monitoring Station
Units are COH units

Ambient regulation = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.0	.1	.2	.4	.6	.9	1.3
Spring	.0	.0	.0	.0	.0	.0	.1	.2	.3	.4	1.3
Summer	.0	.0	.0	.0	.0	.0	.1	.2	.2	.4	.9
Autumn	.0	.0	.0	.0	.0	.1	.1	.3	.4	.6	1.0
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
Winter	.15	.01	.20	1.3	2153	8(0.37%)					
Spring	.07	.00	.10	1.3	2174	1(0.05%)					
Summer	.06	.00	.09	.9	2044	0(0.00%)					
Autumn	.11	.01	.14	1.0	2151	0(0.00%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.0	.1	.2	.4	.5	.9	1.1
Feb	.0	.0	.0	.0	.0	.0	.1	.2	.3	.6	1.0
Mar	.0	.0	.0	.0	.0	.1	.1	.3	.3	.5	1.3
Apr	.0	.0	.0	.0	.0	.0	.1	.2	.2	.4	.6
May	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.6
Jun	.0	.0	.0	.0	.0	.0	.0	.1	.1	.3	.5
Jul	.0	.0	.0	.0	.0	.0	.1	.2	.2	.3	.4
Aug	.0	.0	.0	.0	.0	.1	.1	.2	.3	.6	.9
Sep	.0	.0	.0	.0	.0	.0	.1	.3	.3	.5	.7
Oct	.0	.0	.0	.0	.0	.1	.1	.3	.4	.7	1.0
Nov	.0	.0	.0	.0	.0	.1	.2	.3	.4	.6	1.0
Dec	.0	.0	.0	.0	.1	.1	.3	.5	.7	1.0	1.3
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
Jan	.14	.01	.19	1.1	744	1(0.13%)					
Feb	.09	.00	.13	1.0	666	0(0.00%)					
Mar	.10	.01	.13	1.3	744	1(0.13%)					
Apr	.06	.00	.08	.6	686	0(0.00%)					
May	.05	.00	.07	.6	744	0(0.00%)					
Jun	.03	.00	.06	.5	611	0(0.00%)					
Jul	.06	.00	.07	.4	689	0(0.00%)					
Aug	.09	.01	.11	.9	744	0(0.00%)					
Sep	.09	.00	.12	.7	719	0(0.00%)					
Oct	.11	.01	.14	1.0	744	0(0.00%)					
Nov	.13	.02	.15	1.0	688	0(0.00%)					
Dec	.21	.04	.23	1.3	743	7(0.94%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.0	.0	.1	.3	.4	.7	1.3
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
1991	.10	.00	.14	1.3	8522	9(0.11%)					

n/a - not applicable

* - no data

Wind Summary for 1991
Fort Saskatchewan Monitoring Station

** calculation is for values greater than 1.0 COH unit **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	0	0	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0
E	1	0	0	0	0	0	0	0	0	1
ESE	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	0	0	0	1
S	1	0	0	0	0	0	0	0	0	1
SSW	1	0	0	0	0	0	0	0	0	1
SW	1	0	0	0	0	0	0	0	0	1
WSW	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0	0
TOTAL	4	1	0	0	0	0	0	0	0	5
CALM = 4 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
E	11.1	.0	.0	.0	.0	.0	.0	.0	.0	11.1
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	11.1	.0	.0	.0	.0	.0	.0	.0	11.1
S	11.1	.0	.0	.0	.0	.0	.0	.0	.0	11.1
SSW	11.1	.0	.0	.0	.0	.0	.0	.0	.0	11.1
SW	11.1	.0	.0	.0	.0	.0	.0	.0	.0	11.1
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	44.4	11.1	.0	.0	.0	.0	.0	.0	.0	55.6
CALM = 44.44%										
MISSING DATA = .00%										

COH Summary Statistics for 1991
 Fort McMurray Monitoring Station
 Units are COH units

Ambient regulation = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.0	.0	.1	.2	.3	.6	1.1
Spring	.0	.0	.0	.0	.0	.0	.1	.1	.2	.4	1.2
Summer	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.6
Autumn	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.5
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
Winter	.08	.00	.13	1.1	2003	1(0.05%)					
Spring	.05	.00	.09	1.2	2090	2(0.10%)					
Summer	.04	.00	.07	.6	2093	0(0.00%)					
Autumn	.04	.00	.06	.5	2082	0(0.00%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.0	.0	.1	.2	.3	.5	.8
Feb	.0	.0	.0	.0	.0	.0	.1	.3	.4	.7	1.1
Mar	.0	.0	.0	.0	.0	.0	.1	.2	.3	.5	1.2
Apr	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.4
May	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.4
Jun	.0	.0	.0	.0	.0	.0	.0	.1	.1	.3	.6
Jul	.0	.0	.0	.0	.0	.0	.0	.1	.1	.3	.5
Aug	.0	.0	.0	.0	.0	.0	.1	.1	.2	.4	.6
Sep	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.3
Oct	.0	.0	.0	.0	.0	.0	.0	.1	.1	.3	.5
Nov	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.5
Dec	.0	.0	.0	.0	.0	.0	.1	.2	.2	.4	.8
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
Jan	.08	.00	.12	.8	744	0(0.00%)					
Feb	.09	.00	.15	1.1	672	1(0.15%)					
Mar	.07	.00	.13	1.2	744	2(0.27%)					
Apr	.04	.00	.07	.4	608	0(0.00%)					
May	.04	.00	.06	.4	738	0(0.00%)					
Jun	.03	.00	.06	.6	680	0(0.00%)					
Jul	.03	.00	.06	.5	672	0(0.00%)					
Aug	.06	.00	.08	.6	741	0(0.00%)					
Sep	.04	.00	.06	.3	720	0(0.00%)					
Oct	.03	.00	.06	.5	677	0(0.00%)					
Nov	.04	.00	.07	.5	685	0(0.00%)					
Dec	.06	.00	.09	.8	587	0(0.00%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.0	.0	.0	.0	.0	.0	.1	.1	.2	.4	1.2
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Values > 1.0 COH unit					
	Mean	Mean	Std Dev								
1991	.05	.00	.09	1.2	8268	3(0.04%)					

n/a - not applicable

* - no data

Wind Summary for 1991
Fort McMurray Monitoring Station

** calculation is for values greater than 1.0 COH unit **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
	Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	0	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	0	0	0	
SSW	0	0	0	0	0	0	0	0	0	0	
SW	0	0	0	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	0	0	0	
TOTAL	0	0	0	0	0	0	0	0	0	0	
CALM = 2 hours											
MISSING DATA = 1 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
CALM = 66.67%										
MISSING DATA = 33.33%										

Annual Average Concentration									
Year: 1991									
Pollutant: COH [COH units]									

Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort	Fort	
							Sask.	McMurray	

1976	0.19	0.11	0.04	0.16	0.10	0.21	*	*	
1977	0.20	0.12	0.09	0.19	0.11	0.23	*	*	
1978	0.20	0.15	0.13	0.24	0.10	0.22	*	*	
1979	0.27	0.23	0.20	0.25	0.10	0.26	*	0.04	
1980	0.30	0.28	0.23	0.30	0.11	0.29	*	0.08	
1981	0.37	0.29	0.22	0.41	0.14	0.33	b	0.10	
1982	0.30	0.25	0.09	0.40	0.16	0.33	0.15	0.06	
1983	0.25	0.24	0.17	0.33	0.11	0.31	0.12	0.03	
1984	0.23	0.22	0.24	0.23	0.12	0.29	0.13	0.03	
1985	0.23	0.23	0.22	0.27	0.10	0.23	0.13	0.06	
1986	0.26	0.24	0.18	0.30	0.11	0.23	0.13	0.05	
1987	0.23	0.27	0.17	0.32	0.11	0.28	0.14	0.07	
1988	0.19	0.23	0.21	0.26	0.08	0.30	0.10	0.07	
1989	0.21	0.23	0.24	0.25	0.08	0.29	0.10	0.07	
1990	0.20	0.23	0.22	0.22	0.07	0.24	0.08	0.09	
1991	0.22	0.24	0.23	0.22	0.05	0.23	0.10	0.05	

a ≥ 50% to < 75% of data available

b less than 50% of data available

* no data available

H2S Summary Statistics for 1991
Edmonton East Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = .010 PPM											
Ambient 24-hour average regulation = .003 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.000	.000	.001	.002	.003	.006	.008
Spring	.000	.000	.000	.000	.000	.000	.002	.004	.006	.014	.035
Summer	.000	.000	.000	.000	.000	.001	.001	.002	.003	.005	.012
Autumn	.000	.000	.000	.000	.000	.000	.001	.002	.002	.005	.037

SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Winter	.001	.000	.001	.008	729	0(0.00%)	0(0.00%)				
Spring	.002	.000	.003	.035	2073	50(2.41%)	10(12.50%)				
Summer	.001	.000	.001	.012	2199	4(0.18%)	1(1.09%)				
Autumn	.001	.000	.001	.037	2163	5(0.23%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	*	*	*	*	*	*	*	*	*	*	*
Feb	.000	.000	.000	.000	.000	.000	.001	.001	.003	.004	.006
Mar	.000	.000	.000	.000	.000	.001	.003	.006	.009	.020	.035
Apr	.000	.000	.000	.000	.000	.001	.003	.005	.007	.011	.017
May	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.012
Jun	.000	.000	.000	.000	.000	.000	.001	.002	.002	.003	.012
Jul	.000	.000	.000	.000	.000	.001	.001	.002	.003	.004	.011
Aug	.000	.000	.000	.000	.000	.001	.002	.002	.003	.006	.012
Sep	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004	.009
Oct	.000	.000	.000	.000	.000	.001	.001	.002	.002	.005	.037
Nov	.000	.000	.000	.000	.000	.000	.001	.002	.002	.006	>.025
Dec	.000	.000	.000	.000	.000	.000	.001	.002	.004	.006	.008

MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Jan	*	*	*								
Feb	.001	.000	.001	.006	72	0(0.00%)	0(0.00%)				
Mar	.003	.000	.004	.035	675	32(4.74%)	8(29.63%)				
Apr	.002	.000	.002	.017	703	16(2.28%)	2(7.14%)				
May	.000	.000	.001	.012	695	2(0.29%)	0(0.00%)				
Jun	.001	.000	.001	.012	719	2(0.28%)	1(3.33%)				
Jul	.001	.000	.001	.011	740	1(0.14%)	0(0.00%)				
Aug	.001	.000	.001	.012	740	1(0.14%)	0(0.00%)				
Sep	.000	.000	.001	.009	720	0(0.00%)	0(0.00%)				
Oct	.001	.000	.002	.037	727	2(0.28%)	0(0.00%)				
Nov	.001	.000	.001	.025	716	3(0.42%)	0(0.00%)				
Dec	.001	.000	.001	.008	657	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.000	.000	.000	.001	.002	.004	.008	.037

YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
1991	.001	.000	.002	.037	7164	59(0.82%)	11(3.79%)				

n/a - not applicable

* - no data

Wind Summary for 1991
Edmonton East Monitoring Station

** calculation is for exceedances of the 1-hour regulation for H2S **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	5	1	0	0	0	0	0	0	0	6
NNE	2	1	0	0	0	0	0	0	0	3
NE	9	7	3	1	0	0	0	0	0	20
ENE	1	1	0	0	0	0	0	0	0	2
E	1	0	0	0	0	0	0	0	0	1
ESE	1	0	0	0	0	0	0	0	0	1
SE	1	1	0	0	0	0	0	0	0	2
SSE	2	3	1	0	0	0	0	0	0	6
S	6	6	0	0	0	0	0	0	0	12
SSW	0	0	0	0	0	0	0	0	0	0
SW	2	0	0	0	0	0	0	0	0	2
WSW	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0	0
NNW	2	0	0	0	0	0	0	0	0	2
TOTAL	32	20	4	1	0	0	0	0	0	57
CALM = 0 hours										
MISSING DATA = 2 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	8.5	1.7	.0	.0	.0	.0	.0	.0	.0	10.2
NNE	3.4	1.7	.0	.0	.0	.0	.0	.0	.0	5.1
NE	15.3	11.9	5.1	1.7	.0	.0	.0	.0	.0	33.9
ENE	1.7	1.7	.0	.0	.0	.0	.0	.0	.0	3.4
E	1.7	.0	.0	.0	.0	.0	.0	.0	.0	1.7
ESE	1.7	.0	.0	.0	.0	.0	.0	.0	.0	1.7
SE	1.7	1.7	.0	.0	.0	.0	.0	.0	.0	3.4
SSE	3.4	5.1	1.7	.0	.0	.0	.0	.0	.0	10.2
S	10.2	10.2	.0	.0	.0	.0	.0	.0	.0	20.3
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SW	3.4	.0	.0	.0	.0	.0	.0	.0	.0	3.4
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	3.4	.0	.0	.0	.0	.0	.0	.0	.0	3.4
TOTAL	54.2	33.9	6.8	1.7	.0	.0	.0	.0	.0	96.6
CALM = .00%										
MISSING DATA = 3.39%										

Wind Summary for 1991
Edmonton East Monitoring Station

** calculation is for exceedances of the 24-hour regulation for H2S **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	12	10	0	0	0	0	0	0	0	22
NNE	3	10	1	1	0	0	0	0	0	15
NE	8	6	5	3	0	0	0	0	0	22
ENE	3	0	1	0	0	0	0	0	0	4
E	6	1	1	0	0	0	0	0	0	8
ESE	4	7	0	0	0	0	0	0	0	11
SE	8	7	0	0	0	0	0	0	0	15
SSE	10	7	2	0	0	0	0	0	0	19
S	16	15	7	2	0	0	0	0	0	40
SSW	5	13	5	1	0	0	0	0	0	24
SW	12	3	1	0	0	0	0	0	0	16
WSW	3	2	0	0	0	0	0	0	0	5
W	6	1	0	0	0	0	0	0	0	7
WNW	5	3	4	0	0	0	0	0	0	12
NW	3	2	2	1	1	0	0	0	0	9
NNW	8	2	0	0	0	0	0	0	0	10
TOTAL	112	89	29	8	1	0	0	0	0	239
CALM = 0 hours										
MISSING DATA = 25 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	4.5	3.8	.0	.0	.0	.0	.0	.0	.0	8.3
NNE	1.1	3.8	.4	.4	.0	.0	.0	.0	.0	5.7
NE	3.0	2.3	1.9	1.1	.0	.0	.0	.0	.0	8.3
ENE	1.1	.0	.4	.0	.0	.0	.0	.0	.0	1.5
E	2.3	.4	.4	.0	.0	.0	.0	.0	.0	3.0
ESE	1.5	2.7	.0	.0	.0	.0	.0	.0	.0	4.2
SE	3.0	2.7	.0	.0	.0	.0	.0	.0	.0	5.7
SSE	3.8	2.7	.8	.0	.0	.0	.0	.0	.0	7.2
S	6.1	5.7	2.7	.8	.0	.0	.0	.0	.0	15.2
SSW	1.9	4.9	1.9	.4	.0	.0	.0	.0	.0	9.1
SW	4.5	1.1	.4	.0	.0	.0	.0	.0	.0	6.1
WSW	1.1	.8	.0	.0	.0	.0	.0	.0	.0	1.9
W	2.3	.4	.0	.0	.0	.0	.0	.0	.0	2.7
WNW	1.9	1.1	1.5	.0	.0	.0	.0	.0	.0	4.5
NW	1.1	.8	.8	.4	.4	.0	.0	.0	.0	3.4
NNW	3.0	.8	.0	.0	.0	.0	.0	.0	.0	3.8
TOTAL	42.4	33.7	11.0	3.0	.4	.0	.0	.0	.0	90.5
CALM = .00%										
MISSING DATA = 9.47%										

H2S Summary Statistics for 1991
 Calgary Industrial Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation = .010 PPM											
Ambient 24-hour average regulation = .003 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.001	.001	.002	.003	.004	.007	.012
Spring	.000	.000	.000	.000	.000	.001	.001	.002	.002	.003	.005
Summer	.000	.000	.000	.000	.000	.001	.001	.001	.002	.002	.006
Autumn	.000	.000	.000	.000	.001	.001	.002	.003	.004	.007	.016
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Winter	.002	.001	.001	.012	2074	7(0.34%)	2(2.27%)				
Spring	.001	.000	.001	.005	2105	0(0.00%)	0(0.00%)				
Summer	.001	.000	.001	.006	2011	0(0.00%)	0(0.00%)				
Autumn	.001	.000	.001	.016	1994	8(0.40%)	2(2.41%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.001	.001	.002	.003	.004	.008	.012
Feb	.000	.000	.000	.000	.000	.001	.002	.003	.003	.006	.010
Mar	.000	.000	.000	.000	.001	.001	.001	.002	.003	.004	.005
Apr	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003	.004
May	.000	.000	.000	.000	.001	.001	.001	.001	.001	.002	.002
Jun	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	.002
Jul	.000	.000	.000	.000	.001	.001	.001	.001	.002	.002	.003
Aug	.000	.000	.000	.000	.001	.001	.001	.001	.002	.004	.006
Sep	.000	.000	.000	.000	.000	.001	.001	.002	.003	.006	.007
Oct	.000	.000	.000	.000	.001	.001	.001	.002	.003	.004	.012
Nov	.000	.000	.000	.000	.001	.001	.002	.004	.005	.009	.016
Dec	.000	.000	.000	.000	.001	.001	.003	.004	.005	.007	.011
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Jan	.001	.001	.002	.012	707	5(0.71%)	2(6.45%)				
Feb	.001	.000	.001	.010	641	1(0.16%)	0(0.00%)				
Mar	.001	.000	.001	.005	709	0(0.00%)	0(0.00%)				
Apr	.001	.000	.001	.004	687	0(0.00%)	0(0.00%)				
May	.001	.000	.000	.002	709	0(0.00%)	0(0.00%)				
Jun	.001	.000	.000	.002	682	0(0.00%)	0(0.00%)				
Jul	.001	.000	.000	.003	709	0(0.00%)	0(0.00%)				
Aug	.001	.000	.001	.006	620	0(0.00%)	0(0.00%)				
Sep	.001	.000	.001	.007	615	0(0.00%)	0(0.00%)				
Oct	.001	.000	.001	.012	713	2(0.28%)	0(0.00%)				
Nov	.002	.001	.002	.016	666	6(0.90%)	2(7.41%)				
Dec	.002	.001	.002	.011	726	1(0.14%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.000	.000	.001	.001	.002	.003	.006	.016
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
1991	.001	.000	.001	.016	8184	15(0.18%)	4(1.14%)				

n/a - not applicable

* - no data

Wind Summary for 1991
Calgary Industrial Monitoring Station

** calculation is for exceedances of the 1-hour regulation for H2S **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	0	1	0	0	0	0	0	0	0	1	
NNE	0	0	0	0	0	0	0	0	0	0	
NE	2	0	0	0	0	0	0	0	0	2	
ENE	3	0	0	0	0	0	0	0	0	3	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	0	0	
S	1	0	0	0	0	0	0	0	0	1	
SSW	1	0	0	0	0	0	0	0	0	1	
SW	2	0	0	0	0	0	0	0	0	2	
WSW	1	0	0	0	0	0	0	0	0	1	
W	1	0	0	0	0	0	0	0	0	1	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	2	0	0	0	0	0	0	0	0	2	
TOTAL	13	1	0	0	0	0	0	0	0	14	
CALM = 1 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
		Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	.0	6.7	.0	.0	.0	.0	.0	.0	.0	6.7	
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NE	13.3	.0	.0	.0	.0	.0	.0	.0	.0	13.3	
ENE	20.0	.0	.0	.0	.0	.0	.0	.0	.0	20.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
S	6.7	.0	.0	.0	.0	.0	.0	.0	.0	6.7	
SSW	6.7	.0	.0	.0	.0	.0	.0	.0	.0	6.7	
SW	13.3	.0	.0	.0	.0	.0	.0	.0	.0	13.3	
WSW	6.7	.0	.0	.0	.0	.0	.0	.0	.0	6.7	
W	6.7	.0	.0	.0	.0	.0	.0	.0	.0	6.7	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	13.3	.0	.0	.0	.0	.0	.0	.0	.0	13.3	
TOTAL	86.7	6.7	.0	.0	.0	.0	.0	.0	.0	93.3	
CALM = 6.67%											
MISSING DATA = .00%											

Wind Summary for 1991
Calgary Industrial Monitoring Station

** calculation is for exceedances of the 24-hour regulation for H2S **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	1	2	1	2	0	0	0	0	0	6
NNE	0	1	0	2	0	0	0	0	0	3
NE	1	1	1	0	0	0	0	0	0	3
ENE	4	1	0	0	0	0	0	0	0	5
E	2	0	0	0	0	0	0	0	0	2
ESE	4	0	0	0	0	0	0	0	0	4
SE	2	0	0	0	0	0	0	0	0	2
SSE	4	0	0	0	0	0	0	0	0	4
S	12	0	0	0	0	0	0	0	0	12
SSW	15	2	0	0	0	0	0	0	0	17
SW	18	1	0	0	0	0	0	0	0	19
WSW	2	1	0	0	0	0	0	0	0	3
W	4	3	0	0	0	0	0	0	0	7
WNW	5	1	0	0	0	0	0	0	0	6
NW	0	0	0	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	0	0	0	1
TOTAL	75	13	2	4	0	0	0	0	0	94
CALM = 2 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	1.0	2.1	1.0	2.1	.0	.0	.0	.0	.0	6.3
NNE	.0	1.0	.0	2.1	.0	.0	.0	.0	.0	3.1
NE	1.0	1.0	1.0	.0	.0	.0	.0	.0	.0	3.1
ENE	4.2	1.0	.0	.0	.0	.0	.0	.0	.0	5.2
E	2.1	.0	.0	.0	.0	.0	.0	.0	.0	2.1
ESE	4.2	.0	.0	.0	.0	.0	.0	.0	.0	4.2
SE	2.1	.0	.0	.0	.0	.0	.0	.0	.0	2.1
SSE	4.2	.0	.0	.0	.0	.0	.0	.0	.0	4.2
S	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
SSW	15.6	2.1	.0	.0	.0	.0	.0	.0	.0	17.7
SW	18.8	1.0	.0	.0	.0	.0	.0	.0	.0	19.8
WSW	2.1	1.0	.0	.0	.0	.0	.0	.0	.0	3.1
W	4.2	3.1	.0	.0	.0	.0	.0	.0	.0	7.3
WNW	5.2	1.0	.0	.0	.0	.0	.0	.0	.0	6.3
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	1.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0
TOTAL	78.1	13.5	2.1	4.2	.0	.0	.0	.0	.0	97.9
CALM = 2.08%										
MISSING DATA = .00%										

H2S Summary Statistics for 1991
Fort Saskatchewan Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = .010 PPM											
Ambient 24-hour average regulation = .003 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.000	.001	.001	.002	.003	.007	.035
Spring	.000	.000	.000	.000	.000	.001	.001	.002	.002	.003	.004
Summer	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003	.011
Autumn	.000	.000	.000	.000	.000	.001	.001	.002	.003	.005	.018
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Winter	.001	.000	.002	.035	1943	10(0.51%)	3(3.75%)				
Spring	.001	.000	.001	.004	2118	0(0.00%)	0(0.00%)				
Summer	.001	.000	.001	.011	1975	1(0.05%)	0(0.00%)				
Autumn	.001	.000	.001	.018	2100	2(0.10%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003
Feb	.000	.000	.000	.000	.001	.001	.001	.001	.002	.002	.003
Mar	.000	.000	.000	.000	.000	.001	.001	.001	.002	.002	.003
Apr	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	.004
May	.000	.000	.000	.000	.001	.001	.002	.002	.002	.003	.004
Jun	.000	.000	.000	.000	.000	.001	.001	.002	.003	.004	.004
Jul	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003
Aug	.000	.000	.000	.000	.000	.001	.001	.001	.002	.002	.011
Sep	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	.003
Oct	.000	.000	.000	.000	.000	.001	.001	.002	.003	.005	.018
Nov	.000	.000	.000	.000	.000	.001	.002	.003	.004	.005	.009
Dec	.000	.000	.000	.000	.000	.001	.002	.004	.006	.010	.035
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Jan	.000	.000	.000	.003	736	0(0.00%)	0(0.00%)				
Feb	.001	.000	.000	.003	672	0(0.00%)	0(0.00%)				
Mar	.001	.000	.001	.003	739	0(0.00%)	0(0.00%)				
Apr	.001	.000	.000	.004	708	0(0.00%)	0(0.00%)				
May	.001	.000	.001	.004	671	0(0.00%)	0(0.00%)				
Jun	.001	.000	.001	.004	659	0(0.00%)	0(0.00%)				
Jul	.001	.000	.000	.003	573	0(0.00%)	0(0.00%)				
Aug	.001	.000	.001	.011	743	1(0.13%)	0(0.00%)				
Sep	.001	.000	.000	.003	718	0(0.00%)	0(0.00%)				
Oct	.001	.000	.001	.018	740	2(0.27%)	0(0.00%)				
Nov	.001	.000	.001	.009	642	0(0.00%)	0(0.00%)				
Dec	.002	.000	.003	.035	535	10(1.87%)	3(14.29%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.000	.000	.001	.001	.002	.002	.004	.035
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
1991	.001	.000	.001	.035	8136	13(0.16%)	3(0.89%)				

n/a - not applicable

* - no data

Wind Summary for 1991
Fort Saskatchewan Monitoring Station

** calculation is for exceedances of the 1-hour regulation for H2S **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
	Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	4	0	0	0	0	0	0	0	0	4	
NNE	3	0	0	0	0	0	0	0	0	3	
NE	2	0	0	0	0	0	0	0	0	2	
ENE	0	0	0	0	0	0	0	0	0	0	
E	1	0	0	0	0	0	0	0	0	1	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	0	0	0	
SSW	0	0	0	0	0	0	0	0	0	0	
SW	0	0	0	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	1	1	0	0	0	0	0	0	0	2	
TOTAL	11	1	0	0	0	0	0	0	0	12	
CALM = 1 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	30.8	.0	.0	.0	.0	.0	.0	.0	.0	30.8	
NNE	23.1	.0	.0	.0	.0	.0	.0	.0	.0	23.1	
NE	15.4	.0	.0	.0	.0	.0	.0	.0	.0	15.4	
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	7.7	.0	.0	.0	.0	.0	.0	.0	.0	7.7	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	7.7	7.7	.0	.0	.0	.0	.0	.0	.0	15.4	
TOTAL	84.6	7.7	.0	.0	.0	.0	.0	.0	.0	92.3	
CALM = 7.69%											
MISSING DATA = .00%											

Wind Summary for 1991
Fort Saskatchewan Monitoring Station

** calculation is for exceedances of the 24-hour regulation for H2S **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	5	0	0	0	0	0	0	0	0	5
NNE	10	1	0	0	0	0	0	0	0	11
NE	16	0	0	0	0	0	0	0	0	16
ENE	1	0	0	2	0	0	0	0	0	3
E	2	0	1	0	0	0	0	0	0	3
ESE	2	1	0	0	0	0	0	0	0	3
SE	1	0	0	0	0	0	0	0	0	1
SSE	1	0	0	0	0	0	0	0	0	1
S	1	0	0	0	0	0	0	0	0	1
SSW	3	0	0	0	0	0	0	0	0	3
SW	3	0	0	0	0	0	0	0	0	3
WSW	1	0	0	0	0	0	0	0	0	1
W	1	0	0	0	0	0	0	0	0	1
WNW	1	0	0	0	0	0	0	0	0	1
NW	0	0	0	0	0	0	0	0	0	0
NNW	2	0	0	0	0	0	0	0	0	2
TOTAL	50	2	1	2	0	0	0	0	0	55
CALM = 5 hours										
MISSING DATA = 12 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	6.9	.0	.0	.0	.0	.0	.0	.0	.0	6.9
NNE	13.9	1.4	.0	.0	.0	.0	.0	.0	.0	15.3
NE	22.2	.0	.0	.0	.0	.0	.0	.0	.0	22.2
ENE	1.4	.0	.0	2.8	.0	.0	.0	.0	.0	4.2
E	2.8	.0	1.4	.0	.0	.0	.0	.0	.0	4.2
ESE	2.8	1.4	.0	.0	.0	.0	.0	.0	.0	4.2
SE	1.4	.0	.0	.0	.0	.0	.0	.0	.0	1.4
SSE	1.4	.0	.0	.0	.0	.0	.0	.0	.0	1.4
S	1.4	.0	.0	.0	.0	.0	.0	.0	.0	1.4
SSW	4.2	.0	.0	.0	.0	.0	.0	.0	.0	4.2
SW	4.2	.0	.0	.0	.0	.0	.0	.0	.0	4.2
WSW	1.4	.0	.0	.0	.0	.0	.0	.0	.0	1.4
W	1.4	.0	.0	.0	.0	.0	.0	.0	.0	1.4
WNW	1.4	.0	.0	.0	.0	.0	.0	.0	.0	1.4
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	2.8	.0	.0	.0	.0	.0	.0	.0	.0	2.8
TOTAL	69.4	2.8	1.4	2.8	.0	.0	.0	.0	.0	76.4
CALM = 6.94%										
MISSING DATA = 16.67%										

H2S Summary Statistics for 1991
Fort McMurray Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .010 PPM											
	Ambient 24-hour average regulation = .003 PPM											
	-----BY SEASON-----											
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Winter	.000	.000	.000	.000	.000	.000	.001	.002	.002	.003	.017
	Spring	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.011
	Summer	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001	.004
	Autumn	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.003
	SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	Winter	.001	.000	.001	.017	2126	6(0.28%)	0(0.00%)				
	Spring	.000	.000	.001	.011	2186	2(0.09%)	0(0.00%)				
	Summer	.000	.000	.000	.004	2201	0(0.00%)	0(0.00%)				
	Autumn	.000	.000	.001	.003	2181	0(0.00%)	0(0.00%)				
	-----BY MONTH-----											
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Jan	.000	.000	.000	.000	.000	.001	.001	.002	.002	.002	.003
	Feb	.000	.000	.000	.000	.000	.000	.000	.001	.001	.004	.010
	Mar	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002
	Apr	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.005
	May	.000	.000	.000	.000	.000	.000	.000	.001	.002	.005	.011
	Jun	.000	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002
	Jul	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001
	Aug	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004
	Sep	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001	.001
	Oct	.000	.000	.000	.000	.000	.001	.001	.001	.001	.001	.002
	Nov	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	.003
	Dec	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004	.017
	MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	Jan	.001	.000	.001	.003	743	0(0.00%)	0(0.00%)				
	Feb	.000	.000	.001	.010	671	1(0.15%)	0(0.00%)				
	Mar	.000	.000	.000	.002	744	0(0.00%)	0(0.00%)				
	Apr	.000	.000	.001	.005	712	0(0.00%)	0(0.00%)				
	May	.000	.000	.001	.011	730	2(0.27%)	0(0.00%)				
	Jun	.000	.000	.000	.002	720	0(0.00%)	0(0.00%)				
	Jul	.000	.000	.000	.001	739	0(0.00%)	0(0.00%)				
	Aug	.000	.000	.000	.004	742	0(0.00%)	0(0.00%)				
	Sep	.000	.000	.000	.001	720	0(0.00%)	0(0.00%)				
	Oct	.000	.000	.000	.002	741	0(0.00%)	0(0.00%)				
	Nov	.000	.000	.001	.003	720	0(0.00%)	0(0.00%)				
	Dec	.001	.000	.001	.017	712	5(0.70%)	0(0.00%)				
	-----BY YEAR-----											
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	1991	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.017
	YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	1991	.000	.000	.001	.017	8694	8(0.09%)	0(0.00%)				

n/a - not applicable

* - no data

Wind Summary for 1991
Fort McMurray Monitoring Station

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** calculation is for exceedances of the 1-hour regulation for H2S **
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Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	0	0	0	0	0	0	0	0	0	0	
NNE	3	3	0	0	0	0	0	0	0	6	
NE	0	0	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	2	0	0	0	0	0	0	0	0	2	
SSE	0	0	0	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	0	0	0	
SSW	0	0	0	0	0	0	0	0	0	0	
SW	0	0	0	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	0	0	0	
TOTAL	5	3	0	0	0	0	0	0	0	8	
CALM = 0 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNE	37.5	37.5	.0	.0	.0	.0	.0	.0	.0	75.0	
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	25.0	.0	.0	.0	.0	.0	.0	.0	.0	25.0	
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
TOTAL	62.5	37.5	.0	.0	.0	.0	.0	.0	.0	100.0	
CALM = .00%											
MISSING DATA = .00%											

H2S Summary Statistics for 1991
Fort MacKay Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .010 PPM												
	Ambient 24-hour average regulation = .003 PPM												
	-----BY SEASON-----												
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Winter	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	.006	
	Spring	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.008	
	Summer	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.007	
	Autumn	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	
	SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Winter	.001	.000	.001	.006	2157	0(0.00%)	0(0.00%)					
	Spring	.000	.000	.001	.008	2200	0(0.00%)	0(0.00%)					
	Summer	.000	.000	.001	.007	2156	0(0.00%)	0(0.00%)					
	Autumn	.000	.000	.000	.003	1886	0(0.00%)	0(0.00%)					
	-----BY MONTH-----												
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Jan	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003	.004	
	Feb	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004	.006	
	Mar	.000	.000	.000	.000	.000	.000	.001	.001	.001	.003	.005	
	Apr	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	
	May	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.008	
	Jun	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.007	
	Jul	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.005	
	Aug	.000	.000	.000	.000	.000	.000	.000	.001	.002	.003	.004	
	Sep	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	
	Oct	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	
	Nov	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	
	Dec	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003	
	MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Jan	.001	.000	.001	.004	741	0(0.00%)	0(0.00%)					
	Feb	.000	.000	.001	.006	672	0(0.00%)	0(0.00%)					
	Mar	.000	.000	.001	.005	742	0(0.00%)	0(0.00%)					
	Apr	.000	.000	.000	.002	719	0(0.00%)	0(0.00%)					
	May	.000	.000	.001	.008	739	0(0.00%)	0(0.00%)					
	Jun	.000	.000	.001	.007	714	0(0.00%)	0(0.00%)					
	Jul	.000	.000	.001	.005	704	0(0.00%)	0(0.00%)					
	Aug	.000	.000	.001	.004	738	0(0.00%)	0(0.00%)					
	Sep	.000	.000	.000	.003	720	0(0.00%)	0(0.00%)					
	Oct	.000	.000	.000	.003	629	0(0.00%)	0(0.00%)					
	Nov	.000	.000	.000	.002	537	0(0.00%)	0(0.00%)					
	Dec	.001	.000	.001	.003	744	0(0.00%)	0(0.00%)					
	-----BY YEAR-----												
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	1991	.000	.000	.000	.000	.000	.000	.001	.001	.001	.003	.008	
	YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	1991	.000	.000	.001	.008	8399	0(0.00%)	0(0.00%)					

n/a - not applicable

* - no data

Annual Average Concentration						
Year: 1991						
Pollutant: H2S [ppm]						

Year	EIMU	CIMU	Fort	Fort	Fort	
			Sask.	McMurray	Mackay	

1976	*	*	*	*	*	
1977	*	*	*	*	*	
1978	*	*	*	*	*	
1979	*	*	*	*	*	
1980	*	*	*	*	*	
1981	*	*	b	*	*	
1982	*	*	0.000	*	*	
1983	*	*	0.001	b	b	
1984	*	*	0.000	0.000a	0.000	
1985	*	*	0.000	0.000	0.000	
1986	*	0.001	0.001	0.000	0.000	
1987	*	0.001	0.001	0.000	0.000	
1988	*	0.001	0.001	0.000	0.000	
1989	*	0.001	0.001a	0.000	0.001	
1990	*	0.001	0.001	0.000	0.000	
1991		0.001	0.001	0.000	0.000	

a ≥ 50% to < 75% of data available

b less than 50% of data available

* no data available

NO2 Summary Statistics for 1991
Edmonton Central Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .210 PPM											
	Ambient 24-hour average regulation = .110 PPM											
	Ambient annual average regulation = .030 PPM											
	-----BY SEASON-----											
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Winter	.007	.010	.015	.019	.026	.034	.041	.048	.052	.064	.096
	Spring	.004	.008	.013	.015	.021	.028	.038	.049	.055	.075	.099
	Summer	.003	.006	.008	.010	.015	.021	.028	.035	.040	.049	.077
	Autumn	.004	.007	.011	.014	.020	.028	.036	.043	.046	.058	.068
	SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	Winter	.034	.032	.012	.089	2145	0(0.00%)	0(0.00%)				
	Spring	.031	.028	.014	.095	2167	0(0.00%)	0(0.00%)				
	Summer	.022	.020	.010	.074	2181	0(0.00%)	0(0.00%)				
	Autumn	.029	.026	.011	.064	2154	0(0.00%)	0(0.00%)				
	-----BY MONTH-----											
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Jan	.007	.008	.013	.018	.025	.034	.040	.048	.053	.062	.081
	Feb	.008	.009	.015	.017	.024	.031	.038	.045	.048	.055	.060
	Mar	.009	.012	.015	.019	.027	.035	.046	.058	.065	.088	.099
	Apr	.004	.007	.013	.016	.021	.027	.036	.045	.051	.058	.067
	May	.004	.008	.011	.013	.018	.025	.032	.039	.043	.055	.067
	Jun	.004	.006	.008	.011	.015	.021	.029	.037	.041	.048	.061
	Jul	.003	.006	.008	.010	.016	.020	.026	.031	.035	.044	.049
	Aug	.005	.006	.008	.010	.015	.022	.030	.037	.042	.057	.077
	Sep	.004	.006	.008	.010	.016	.022	.030	.038	.042	.055	.064
	Oct	.009	.011	.014	.017	.022	.030	.039	.044	.048	.058	.068
	Nov	.009	.010	.015	.020	.025	.032	.038	.044	.047	.058	.068
	Dec	.010	.013	.019	.023	.030	.036	.044	.049	.055	.071	.096
	MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	Jan	.033	.031	.012	.074	739	0(0.00%)	0(0.00%)				
	Feb	.031	.029	.011	.052	666	0(0.00%)	0(0.00%)				
	Mar	.038	.034	.016	.090	739	0(0.00%)	0(0.00%)				
	Apr	.029	.027	.012	.063	684	0(0.00%)	0(0.00%)				
	May	.026	.023	.010	.063	744	0(0.00%)	0(0.00%)				
	Jun	.023	.021	.010	.057	720	0(0.00%)	0(0.00%)				
	Jul	.021	.019	.008	.046	731	0(0.00%)	0(0.00%)				
	Aug	.023	.021	.011	.072	730	0(0.00%)	0(0.00%)				
	Sep	.023	.021	.011	.060	717	0(0.00%)	0(0.00%)				
	Oct	.031	.028	.011	.059	739	0(0.00%)	0(0.00%)				
	Nov	.032	.030	.010	.059	698	0(0.00%)	0(0.00%)				
	Dec	.037	.035	.012	.086	740	0(0.00%)	0(0.00%)				
	-----BY YEAR-----											
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	1991	.003	.007	.011	.014	.020	.028	.037	.044	.050	.063	.099
	YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	1991	.029	.026	.012	.096	8647	0(0.00%)	0(0.00%)				

n/a - not applicable

* - no data

NO2 Summary Statistics for 1991
Edmonton Northwest Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .210 PPM												
	Ambient 24-hour average regulation = .110 PPM												
	Ambient annual average regulation = .030 PPM												
	-----BY SEASON-----												
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Winter	.000	.004	.007	.011	.020	.036	.048	.059	.066	.089	.120	
	Spring	.000	.003	.005	.007	.011	.020	.037	.052	.063	.079	.098	
	Summer	.000	.003	.005	.006	.009	.013	.021	.032	.038	.048	.073	
	Autumn	.000	.002	.004	.006	.011	.022	.035	.044	.052	.065	.083	

	SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Winter	.036	.029	.019	.120	2138	0(0.00%)	0(0.00%)					
	Spring	.026	.019	.018	.098	2189	0(0.00%)	0(0.00%)					
	Summer	.016	.013	.011	.073	2049	0(0.00%)	0(0.00%)					
	Autumn	.024	.019	.015	.083	2174	0(0.00%)	0(0.00%)					
	-----BY MONTH-----												
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Jan	.002	.004	.006	.009	.017	.039	.052	.062	.068	.085	.120	
	Feb	.000	.002	.008	.013	.020	.035	.047	.056	.061	.087	.115	
	Mar	.002	.003	.007	.010	.017	.032	.048	.063	.071	.082	.098	
	Apr	.002	.003	.005	.007	.010	.018	.035	.050	.057	.075	.090	
	May	.000	.001	.004	.006	.009	.015	.025	.039	.048	.067	.084	
	Jun	.000	.002	.003	.005	.009	.014	.024	.035	.042	.053	.073	
	Jul	.003	.004	.005	.006	.009	.012	.019	.028	.034	.040	.048	
	Aug	.002	.003	.005	.006	.009	.014	.021	.031	.039	.051	.069	
	Sep	.000	.001	.003	.004	.008	.016	.027	.040	.046	.063	.077	
	Oct	.001	.003	.005	.007	.012	.022	.036	.045	.051	.063	.083	
	Nov	.002	.003	.007	.010	.018	.028	.039	.048	.054	.068	.081	
	Dec	.003	.004	.009	.013	.022	.036	.047	.058	.069	.092	.112	

	MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Jan	.036	.029	.021	.118	740	0(0.00%)	0(0.00%)					
	Feb	.035	.028	.018	.115	661	0(0.00%)	0(0.00%)					
	Mar	.034	.028	.020	.096	739	0(0.00%)	0(0.00%)					
	Apr	.024	.018	.017	.088	711	0(0.00%)	0(0.00%)					
	May	.019	.014	.014	.084	739	0(0.00%)	0(0.00%)					
	Jun	.017	.013	.012	.073	594	0(0.00%)	0(0.00%)					
	Jul	.015	.013	.009	.045	717	0(0.00%)	0(0.00%)					
	Aug	.017	.014	.011	.067	738	0(0.00%)	0(0.00%)					
	Sep	.019	.013	.014	.077	718	0(0.00%)	0(0.00%)					
	Oct	.025	.020	.015	.082	740	0(0.00%)	0(0.00%)					
	Nov	.029	.025	.015	.079	716	0(0.00%)	0(0.00%)					
	Dec	.036	.031	.019	.109	737	0(0.00%)	0(0.00%)					
	-----BY YEAR-----												
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	1991	.000	.003	.005	.007	.011	.021	.037	.050	.059	.077	.120	

	YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	1991	.026	.019	.018	.120	8550	0(0.00%)	0(0.00%)					

n/a - not applicable

* - no data

NO2 Summary Statistics for 1991
Edmonton East Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .210 PPM												
	Ambient 24-hour average regulation = .110 PPM												
	Ambient annual average regulation = .030 PPM												
	-----BY SEASON-----												
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Winter	.003	.004	.006	.008	.014	.025	.040	.054	.068	.094	.135	
	Spring	.001	.003	.004	.005	.008	.013	.024	.035	.041	.054	.083	
	Summer	.000	.003	.004	.006	.008	.013	.021	.028	.033	.043	.075	
	Autumn	.001	.003	.006	.007	.012	.020	.033	.047	.058	.088	.126	
	SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Winter	.029	.023	.020	.132	2152	0(0.00%)	0(0.00%)					
	Spring	.017	.013	.012	.082	2127	0(0.00%)	0(0.00%)					
	Summer	.015	.013	.009	.075	2190	0(0.00%)	0(0.00%)					
	Autumn	.024	.019	.018	.125	1929	0(0.00%)	0(0.00%)					
	-----BY MONTH-----												
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Jan	.004	.005	.007	.009	.013	.028	.040	.047	.050	.057	.065	
	Feb	.003	.004	.005	.006	.010	.018	.028	.038	.041	.050	.056	
	Mar	.004	.005	.006	.007	.011	.021	.033	.043	.049	.059	.083	
	Apr	.004	.004	.005	.006	.009	.014	.022	.033	.038	.047	.060	
	May	.001	.001	.003	.004	.006	.010	.016	.022	.027	.038	.051	
	Jun	.000	.001	.004	.005	.008	.012	.019	.027	.031	.034	.064	
	Jul	.001	.003	.005	.006	.008	.013	.018	.025	.029	.035	.043	
	Aug	.002	.003	.004	.005	.008	.015	.024	.033	.037	.049	.075	
	Sep	.002	.004	.005	.006	.009	.017	.027	.038	.044	.053	.087	
	Oct	.001	.001	.006	.008	.012	.017	.027	.040	.046	.063	.075	
	Nov	.003	.004	.007	.009	.015	.025	.044	.063	.078	.101	.126	
	Dec	.003	.005	.008	.011	.018	.034	.056	.076	.083	.114	.135	
	MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Jan	.028	.023	.015	.061	738	0(0.00%)	0(0.00%)					
	Feb	.020	.017	.012	.053	671	0(0.00%)	0(0.00%)					
	Mar	.023	.019	.014	.079	673	0(0.00%)	0(0.00%)					
	Apr	.017	.014	.011	.056	714	0(0.00%)	0(0.00%)					
	May	.012	.009	.008	.050	740	0(0.00%)	0(0.00%)					
	Jun	.014	.011	.008	.064	712	0(0.00%)	0(0.00%)					
	Jul	.014	.012	.008	.042	739	0(0.00%)	0(0.00%)					
	Aug	.017	.014	.011	.073	739	0(0.00%)	0(0.00%)					
	Sep	.020	.016	.013	.085	720	0(0.00%)	0(0.00%)					
	Oct	.021	.017	.013	.074	529	0(0.00%)	0(0.00%)					
	Nov	.032	.025	.022	.123	680	0(0.00%)	0(0.00%)					
	Dec	.039	.031	.026	.132	743	0(0.00%)	0(0.00%)					
	-----BY YEAR-----												
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	1991	.000	.003	.005	.006	.010	.017	.029	.043	.052	.081	.135	
	YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	1991	.021	.016	.016	.135	8398	0(0.00%)	0(0.00%)					

n/a - not applicable

* - no data

NO2 Summary Statistics for 1991
 Calgary Downtown Monitoring Station
 Units are PPM (parts per million)

	Ambient 1-hour average regulation = .210 PPM												
	Ambient 24-hour average regulation = .110 PPM												
	Ambient annual average regulation = .030 PPM												
-----BY SEASON-----													
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Winter	.011	.016	.022	.026	.036	.044	.052	.060	.066	.088	.232	
	Spring	.009	.011	.016	.021	.029	.039	.050	.060	.066	.075	.084	
	Summer	.007	.010	.014	.017	.021	.027	.035	.042	.046	.053	.072	
	Autumn	.008	.012	.015	.019	.026	.035	.043	.051	.056	.082	.114	
	SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour			
	Winter	.044	.042	.016	.221	2132	2(0.09%)		0(0.00%)				
	Spring	.040	.037	.015	.075	2179	0(0.00%)		0(0.00%)				
	Summer	.029	.027	.010	.067	2174	0(0.00%)		0(0.00%)				
	Autumn	.036	.033	.014	.106	2155	0(0.00%)		0(0.00%)				
-----BY MONTH-----													
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Jan	.015	.018	.022	.028	.038	.045	.054	.066	.077	.115	.232	
	Feb	.011	.017	.025	.029	.037	.045	.053	.058	.063	.074	.087	
	Mar	.020	.024	.029	.033	.042	.051	.060	.068	.072	.079	.084	
	Apr	.009	.010	.014	.019	.027	.037	.046	.053	.058	.064	.077	
	May	.009	.011	.014	.018	.023	.032	.040	.047	.051	.057	.072	
	Jun	.009	.011	.013	.016	.021	.027	.034	.042	.047	.053	.059	
	Jul	.008	.010	.014	.017	.021	.028	.036	.043	.046	.051	.058	
	Aug	.007	.010	.014	.017	.022	.027	.035	.042	.046	.054	.072	
	Sep	.008	.010	.013	.016	.022	.028	.036	.044	.048	.056	.068	
	Oct	.009	.012	.016	.019	.027	.034	.041	.047	.051	.061	.114	
	Nov	.009	.014	.021	.028	.036	.042	.049	.058	.067	.093	.107	
	Dec	.013	.016	.020	.024	.033	.042	.049	.056	.062	.075	.095	
	MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour			
	Jan	.047	.044	.020	.217	736	2(0.27%)		0(0.00%)				
	Feb	.045	.043	.012	.076	663	0(0.00%)		0(0.00%)				
	Mar	.051	.049	.013	.064	736	0(0.00%)		0(0.00%)				
	Apr	.036	.034	.013	.068	707	0(0.00%)		0(0.00%)				
	May	.032	.030	.011	.063	736	0(0.00%)		0(0.00%)				
	Jun	.028	.027	.010	.050	710	0(0.00%)		0(0.00%)				
	Jul	.029	.027	.010	.050	729	0(0.00%)		0(0.00%)				
	Aug	.029	.027	.010	.067	735	0(0.00%)		0(0.00%)				
	Sep	.029	.027	.011	.060	712	0(0.00%)		0(0.00%)				
	Oct	.034	.032	.011	.105	732	0(0.00%)		0(0.00%)				
	Nov	.043	.041	.014	.098	711	0(0.00%)		0(0.00%)				
	Dec	.041	.039	.013	.082	733	0(0.00%)		0(0.00%)				
-----BY YEAR-----													
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	1991	.005	.011	.016	.019	.026	.036	.046	.055	.062	.078	.232	
	YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour			
	1991	.037	.034	.015	.227	8640	2(0.02%)		0(0.00%)				

n/a - not applicable				* - no data									

n/a - not applicable

* - no data

NO2 Summary Statistics for 1991
 Calgary Residential Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation =						.210 PPM					
Ambient 24-hour average regulation =						.110 PPM					
Ambient annual average regulation =						.030 PPM					
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.002	.004	.006	.008	.013	.022	.034	.044	.050	.065	.083
Spring	.002	.003	.004	.005	.008	.013	.022	.033	.043	.057	.066
Summer	.002	.003	.004	.005	.007	.010	.015	.022	.027	.036	.044
Autumn	.002	.003	.004	.006	.010	.017	.029	.040	.045	.055	.083

SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Winter	.024	.020	.014	.081	2143	0(0.00%)	0(0.00%)				
Spring	.016	.013	.012	.066	2196	0(0.00%)	0(0.00%)				
Summer	.012	.010	.007	.042	2055	0(0.00%)	0(0.00%)				
Autumn	.020	.016	.013	.083	2059	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.004	.006	.008	.013	.022	.035	.048	.054	.075	.083
Feb	.002	.003	.005	.007	.011	.020	.030	.041	.047	.057	.065
Mar	.003	.004	.006	.008	.012	.020	.030	.045	.052	.061	.066
Apr	.002	.003	.003	.004	.005	.009	.018	.027	.037	.046	.050
May	.002	.003	.004	.005	.007	.011	.016	.025	.030	.038	.054
Jun	.002	.003	.003	.004	.006	.009	.013	.019	.025	.032	.044
Jul	.003	.003	.004	.004	.007	.010	.015	.022	.028	.037	.041
Aug	.002	.003	.005	.005	.008	.012	.016	.023	.028	.036	.038
Sep	.002	.003	.004	.005	.007	.013	.019	.031	.038	.045	.054
Oct	.002	.003	.004	.006	.008	.015	.025	.034	.039	.046	.055
Nov	.002	.003	.007	.010	.017	.027	.038	.047	.052	.061	.083
Dec	.003	.003	.007	.008	.015	.024	.035	.043	.048	.059	.068

MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Jan	.025	.021	.016	.080	741	0(0.00%)	0(0.00%)				
Feb	.022	.018	.013	.063	669	0(0.00%)	0(0.00%)				
Mar	.023	.019	.014	.063	741	0(0.00%)	0(0.00%)				
Apr	.013	.009	.010	.050	715	0(0.00%)	0(0.00%)				
May	.013	.011	.008	.052	740	0(0.00%)	0(0.00%)				
Jun	.011	.009	.007	.042	716	0(0.00%)	0(0.00%)				
Jul	.012	.010	.007	.038	605	0(0.00%)	0(0.00%)				
Aug	.013	.011	.007	.036	734	0(0.00%)	0(0.00%)				
Sep	.015	.012	.010	.052	676	0(0.00%)	0(0.00%)				
Oct	.018	.014	.011	.055	671	0(0.00%)	0(0.00%)				
Nov	.028	.024	.014	.081	712	0(0.00%)	0(0.00%)				
Dec	.026	.022	.013	.065	733	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.002	.003	.004	.005	.009	.015	.025	.037	.044	.057	.083

YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
1991	.018	.014	.013	.083	8453	0(0.00%)	0(0.00%)				

n/a - not applicable

* - no data

NO2 Summary Statistics for 1991
 Calgary Industrial Monitoring Station
 Units are PPM (parts per million)

	Ambient 1-hour average regulation = .210 PPM											
	Ambient 24-hour average regulation = .110 PPM											
	Ambient annual average regulation = .030 PPM											
	-----BY SEASON-----											
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Winter	.003	.006	.009	.011	.020	.033	.040	.047	.054	.096	.186
	Spring	.002	.004	.007	.009	.015	.026	.037	.045	.049	.057	.073
	Summer	.004	.006	.009	.010	.015	.021	.026	.031	.034	.042	.052
	Autumn	.003	.006	.009	.012	.018	.027	.036	.044	.052	.080	.185
	SEASON	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	Winter	.032		.028		.017		.183	1893	0(0.00%)	0(0.00%)	
	Spring	.027		.023		.014		.071	2167	0(0.00%)	0(0.00%)	
	Summer	.021		.019		.008		.048	2115	0(0.00%)	0(0.00%)	
	Autumn	.028		.025		.015		.182	1890	0(0.00%)	0(0.00%)	
	-----BY MONTH-----											
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Jan	.004	.007	.009	.011	.020	.034	.042	.051	.061	.137	.186
	Feb	.006	.008	.009	.012	.019	.028	.037	.044	.048	.063	.068
	Mar	.003	.003	.010	.013	.021	.037	.045	.050	.054	.065	.073
	Apr	.002	.003	.005	.006	.010	.018	.032	.040	.045	.051	.057
	May	.005	.008	.010	.012	.018	.024	.031	.037	.040	.045	.052
	Jun	.004	.005	.007	.008	.014	.020	.026	.033	.036	.045	.052
	Jul	.006	.007	.009	.011	.016	.021	.027	.031	.033	.038	.043
	Aug	.008	.008	.010	.012	.015	.020	.026	.031	.033	.041	.052
	Sep	.006	.006	.008	.009	.015	.021	.027	.032	.034	.041	.045
	Oct	.005	.006	.009	.012	.017	.025	.032	.039	.043	.058	.063
	Nov	.003	.006	.010	.015	.025	.035	.043	.055	.066	.114	.185
	Dec	.003	.005	.008	.011	.023	.035	.041	.048	.053	.073	.093
	MONTH	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	Jan	.034		.029		.023		.182	672	0(0.00%)	0(0.00%)	
	Feb	.028		.025		.012		.062	486	0(0.00%)	0(0.00%)	
	Mar	.034		.030		.014		.070	739	0(0.00%)	0(0.00%)	
	Apr	.021		.017		.013		.055	693	0(0.00%)	0(0.00%)	
	May	.025		.023		.009		.047	735	0(0.00%)	0(0.00%)	
	Jun	.020		.018		.009		.048	696	0(0.00%)	0(0.00%)	
	Jul	.021		.020		.007		.037	739	0(0.00%)	0(0.00%)	
	Aug	.021		.020		.007		.044	680	0(0.00%)	0(0.00%)	
	Sep	.021		.019		.008		.039	439	0(0.00%)	0(0.00%)	
	Oct	.025		.023		.011		.058	743	0(0.00%)	0(0.00%)	
	Nov	.036		.032		.019		.182	708	0(0.00%)	0(0.00%)	
	Dec	.032		.028		.014		.090	735	0(0.00%)	0(0.00%)	
	-----BY YEAR-----											
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	1991	.002	.005	.008	.011	.017	.025	.035	.043	.049	.066	.186
	YEAR	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	1991	.027		.023		.014		.184	8065	0(0.00%)	0(0.00%)	

	n/a - not applicable				* - no data							

n/a - not applicable

* - no data

NO2 Summary Statistics for 1991
Fort Saskatchewan Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = .210 PPM											
Ambient 24-hour average regulation = .110 PPM											
Ambient annual average regulation = .030 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.001	.005	.017	.034	.044	.050	.065	.087
Spring	.000	.000	.001	.002	.004	.008	.014	.026	.033	.047	.071
Summer	.000	.000	.001	.002	.004	.006	.010	.016	.020	.030	.049
Autumn	.000	.000	.001	.002	.004	.008	.018	.027	.033	.041	.060
SEASON	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
	Mean		Mean		Std Dev				1 hour	24 hour	
Winter	.021		.009		.017		.087	1968	0(0.00%)	0(0.00%)	
Spring	.011		.006		.010		.071	2078	0(0.00%)	0(0.00%)	
Summer	.008		.005		.006		.049	2198	0(0.00%)	0(0.00%)	
Autumn	.012		.006		.010		.060	2030	0(0.00%)	0(0.00%)	
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.003	.012	.035	.042	.045	.055	.065
Feb	.000	.000	.001	.001	.004	.010	.020	.032	.038	.047	.058
Mar	.000	.000	.001	.001	.004	.010	.023	.036	.043	.054	.071
Apr	.000	.000	.001	.001	.002	.005	.010	.016	.021	.030	.058
May	.000	.001	.005	.005	.006	.008	.013	.021	.025	.033	.039
Jun	.000	.000	.000	.001	.002	.005	.008	.014	.019	.031	.043
Jul	.001	.002	.002	.003	.004	.005	.009	.015	.019	.025	.031
Aug	.001	.002	.003	.003	.004	.007	.012	.017	.021	.031	.049
Sep	.001	.002	.002	.003	.004	.007	.014	.021	.025	.029	.043
Oct	.000	.000	.001	.001	.003	.007	.016	.027	.031	.040	.056
Nov	.000	.000	.001	.002	.005	.013	.023	.034	.038	.043	.060
Dec	.000	.000	.005	.010	.019	.032	.044	.054	.062	.076	.087
MONTH	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
	Mean		Mean		Std Dev				1 hour	24 hour	
Jan	.018		.006		.017		.065	734	0(0.00%)	0(0.00%)	
Feb	.014		.007		.012		.058	672	0(0.00%)	0(0.00%)	
Mar	.015		.007		.014		.071	735	0(0.00%)	0(0.00%)	
Apr	.007		.004		.007		.058	688	0(0.00%)	0(0.00%)	
May	.011		.008		.007		.039	655	0(0.00%)	0(0.00%)	
Jun	.006		.003		.006		.043	712	0(0.00%)	0(0.00%)	
Jul	.007		.006		.005		.030	742	0(0.00%)	0(0.00%)	
Aug	.009		.007		.006		.048	744	0(0.00%)	0(0.00%)	
Sep	.010		.007		.007		.042	662	0(0.00%)	0(0.00%)	
Oct	.011		.004		.010		.056	735	0(0.00%)	0(0.00%)	
Nov	.016		.008		.012		.060	633	0(0.00%)	0(0.00%)	
Dec	.032		.023		.017		.087	562	0(0.00%)	0(0.00%)	
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.001	.002	.004	.008	.018	.032	.039	.054	.087
YEAR	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
	Mean		Mean		Std Dev				1 hour	24 hour	
1991	.013		.006		.012		.087	8274	0(0.00%)	0(0.00%)	

n/a - not applicable

* - no data

NO2 Summary Statistics for 1991
 Fort McMurray Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation =						.210 PPM					
Ambient 24-hour average regulation =						.110 PPM					
Ambient annual average regulation =						.030 PPM					
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.002	.002	.003	.006	.011	.019	.026	.030	.040	.052
Spring	.000	.001	.002	.002	.004	.007	.014	.026	.033	.045	.064
Summer	.000	.001	.001	.002	.003	.004	.007	.011	.014	.022	.044
Autumn	.000	.001	.002	.002	.003	.007	.014	.021	.025	.032	.044

SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		24 hour			
Winter	.013	.010	.009	.052	2118	0(0.00%)		0(0.00%)			
Spring	.011	.007	.010	.064	2200	0(0.00%)		0(0.00%)			
Summer	.006	.004	.005	.044	2177	0(0.00%)		0(0.00%)			
Autumn	.010	.007	.008	.044	1988	0(0.00%)		0(0.00%)			
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.002	.002	.002	.003	.005	.012	.018	.024	.028	.034	.040
Feb	.001	.002	.002	.002	.004	.011	.019	.028	.035	.042	.052
Mar	.001	.002	.002	.003	.005	.012	.023	.035	.040	.055	.064
Apr	.001	.001	.001	.002	.003	.006	.011	.018	.025	.038	.051
May	.000	.001	.002	.003	.004	.005	.009	.017	.023	.035	.040
Jun	.000	.001	.002	.002	.003	.004	.007	.011	.014	.022	.035
Jul	.000	.001	.001	.001	.002	.004	.006	.011	.013	.020	.035
Aug	.000	.001	.001	.002	.003	.005	.008	.012	.016	.023	.044
Sep	.000	.001	.001	.001	.002	.005	.009	.016	.019	.027	.031
Oct	.001	.001	.002	.002	.003	.007	.012	.022	.026	.032	.041
Nov	.001	.002	.002	.003	.006	.011	.017	.024	.027	.036	.044
Dec	.000	.002	.003	.005	.008	.011	.020	.027	.030	.040	.047

MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		24 hour			
Jan	.013	.010	.008	.038	740	0(0.00%)		0(0.00%)			
Feb	.013	.009	.010	.051	669	0(0.00%)		0(0.00%)			
Mar	.016	.011	.013	.063	744	0(0.00%)		0(0.00%)			
Apr	.008	.006	.008	.050	720	0(0.00%)		0(0.00%)			
May	.008	.005	.007	.040	736	0(0.00%)		0(0.00%)			
Jun	.006	.004	.004	.035	696	0(0.00%)		0(0.00%)			
Jul	.005	.003	.004	.035	738	0(0.00%)		0(0.00%)			
Aug	.006	.005	.005	.044	743	0(0.00%)		0(0.00%)			
Sep	.007	.004	.006	.031	715	0(0.00%)		0(0.00%)			
Oct	.009	.007	.008	.040	554	0(0.00%)		0(0.00%)			
Nov	.012	.010	.008	.043	719	0(0.00%)		0(0.00%)			
Dec	.014	.011	.009	.047	709	0(0.00%)		0(0.00%)			
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.001	.002	.002	.003	.007	.013	.022	.028	.040	.064

YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		24 hour			
1991	.010	.006	.009	.064	8483	0(0.00%)		0(0.00%)			

n/a - not applicable

* - no data

Annual Average Concentration									
Year: 1991									
Pollutant: NO2 [ppm]									

Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	Fort Mackay

1976	0.053	0.024	0.009	0.032	0.016	0.024	*	0.032	*
1977	0.039	0.020	0.016	0.044	0.025	0.031	*	*	*
1978	0.042	0.028	0.019	0.046	0.027	0.032	*	*	*
1979	0.043	0.029	0.023	0.047	0.023	0.027	*	0.010a	*
1980	0.036	0.023	0.017	0.041	0.019	0.025	*	b	*
1981	0.043	0.031	0.022	0.036	0.018	0.020	b	0.010	*
1982	0.037	0.027	0.017	0.047	0.018	0.030	0.020	0.010	*
1983	0.027	0.025	0.018	0.037	0.018	0.028	0.020	0.010	b
1984	0.026	0.023	0.013	0.033	0.018	0.028	0.020	0.010a	0.000
1985	0.029	0.020	0.019	0.036	0.015	0.027	0.010	0.010a	0.000
1986	0.030	0.019	0.016	0.035	0.021	0.027	0.013	0.010	0.003
1987	0.031	0.020	0.016	0.034	0.020	0.025	0.014	0.010	b
1988	0.028	0.020	0.016	0.035	0.019	0.026	0.013	0.010	*
1989	0.026	0.022	0.015	0.035	0.020	0.029	0.009a	0.010	*
1990	0.027	0.025	0.019	0.034	0.018	0.027	0.013	0.011	*
1991	0.029	0.026	0.021	0.037	0.018	0.026	0.013	0.010	*

a ≥ 50% to < 75% of data available

b less than 50% of data available

* no data available

NO Summary Statistics for 1991
Edmonton Central Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.002	.003	.005	.007	.015	.033	.066	.132	.188	.327	.605
Spring	.000	.003	.004	.006	.009	.018	.030	.057	.088	.196	.347
Summer	.000	.002	.003	.004	.007	.013	.022	.035	.050	.095	.153
Autumn	.002	.003	.005	.007	.014	.028	.051	.088	.120	.193	.420
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.055	.032	.068	.603	2145	n/a					
Spring	.028	.018	.036	.347	2167	n/a					
Summer	.018	.013	.017	.153	2181	n/a					
Autumn	.040	.026	.042	.418	2154	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.002	.002	.005	.007	.013	.028	.054	.104	.148	.233	.326
Feb	.002	.002	.004	.006	.013	.030	.059	.094	.123	.188	.242
Mar	.001	.002	.005	.007	.012	.026	.048	.095	.148	.254	.347
Apr	.000	.003	.005	.006	.010	.018	.028	.053	.074	.153	.207
May	.002	.003	.004	.005	.007	.013	.021	.029	.040	.071	.120
Jun	.001	.002	.004	.005	.008	.015	.023	.039	.052	.095	.143
Jul	.001	.002	.003	.004	.007	.012	.020	.028	.034	.068	.153
Aug	.000	.002	.003	.004	.006	.013	.024	.041	.055	.095	.150
Sep	.002	.003	.004	.005	.010	.022	.037	.060	.087	.164	.420
Oct	.002	.003	.005	.008	.014	.029	.048	.079	.095	.164	.417
Nov	.003	.004	.007	.010	.017	.037	.070	.117	.153	.257	.388
Dec	.002	.003	.006	.009	.018	.043	.095	.192	.279	.473	.605
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.045	.028	.048	.324	739	n/a					
Feb	.042	.027	.040	.240	666	n/a					
Mar	.042	.025	.051	.346	739	n/a					
Apr	.026	.018	.027	.207	684	n/a					
May	.016	.012	.013	.118	744	n/a					
Jun	.019	.014	.017	.142	720	n/a					
Jul	.016	.012	.014	.152	731	n/a					
Aug	.019	.012	.019	.150	730	n/a					
Sep	.031	.020	.035	.418	717	n/a					
Oct	.037	.026	.034	.415	739	n/a					
Nov	.053	.035	.052	.385	698	n/a					
Dec	.078	.042	.095	.603	740	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.003	.004	.006	.010	.020	.041	.078	.119	.241	.605
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.035	.021	.047	.605	8647	n/a					

n/a - not applicable

* - no data

NO Summary Statistics for 1991
Edmonton Northwest Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.005	.013	.035	.098	.196	.271	.555	.815
Spring	.000	.000	.001	.002	.004	.011	.029	.070	.117	.266	.593
Summer	.000	.001	.002	.002	.004	.008	.015	.031	.047	.095	.159
Autumn	.000	.001	.002	.004	.009	.023	.056	.115	.180	.334	.688
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.076	.031	.104	.815	2138	n/a					
Spring	.028	.010	.051	.593	2189	n/a					
Summer	.014	.008	.018	.159	2049	n/a					
Autumn	.047	.020	.066	.688	2174	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.002	.005	.013	.032	.088	.177	.240	.427	.761
Feb	.000	.000	.002	.005	.012	.029	.076	.156	.218	.392	.756
Mar	.000	.000	.002	.003	.009	.021	.051	.118	.186	.346	.593
Apr	.000	.000	.001	.002	.004	.011	.026	.061	.097	.185	.454
May	.000	.000	.001	.001	.003	.007	.014	.029	.053	.130	.307
Jun	.000	.001	.001	.002	.004	.009	.016	.035	.051	.097	.154
Jul	.001	.001	.002	.002	.005	.009	.014	.026	.036	.068	.105
Aug	.000	.001	.002	.002	.004	.007	.015	.034	.051	.112	.159
Sep	.000	.001	.002	.003	.007	.017	.039	.089	.135	.255	.476
Oct	.000	.000	.002	.003	.009	.021	.051	.099	.158	.306	.514
Nov	.000	.001	.003	.005	.014	.037	.081	.161	.215	.342	.688
Dec	.000	.001	.003	.005	.015	.048	.125	.247	.339	.632	.815
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.068	.030	.089	.761	740	n/a					
Feb	.062	.025	.088	.756	661	n/a					
Mar	.046	.018	.069	.593	739	n/a					
Apr	.025	.010	.041	.454	711	n/a					
May	.014	.005	.027	.307	739	n/a					
Jun	.015	.008	.019	.154	594	n/a					
Jul	.013	.008	.014	.104	717	n/a					
Aug	.014	.008	.020	.159	738	n/a					
Sep	.036	.015	.055	.476	718	n/a					
Oct	.042	.018	.058	.514	740	n/a					
Nov	.064	.030	.080	.688	716	n/a					
Dec	.096	.039	.127	.815	737	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.001	.002	.002	.006	.015	.044	.107	.176	.357	.815
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.042	.015	.071	.815	8550	n/a					

n/a - not applicable

* - no data

NO Summary Statistics for 1991
Edmonton East Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.003	.011	.041	.095	.128	.201	.380
Spring	.000	.001	.003	.004	.007	.010	.017	.030	.059	.114	.220
Summer	.000	.002	.005	.007	.012	.018	.025	.033	.051	.101	.215
Autumn	.000	.000	.000	.001	.006	.013	.027	.059	.086	.160	.345
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.032	.004	.047	.380	2152	n/a					
Spring	.017	.010	.021	.220	2127	n/a					
Summer	.021	.016	.018	.215	2190	n/a					
Autumn	.023	.006	.032	.345	1929	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.002	.003	.008	.018	.052	.105	.131	.204	.380
Feb	.000	.000	.001	.001	.003	.008	.020	.055	.081	.128	.220
Mar	.000	.000	.001	.002	.005	.010	.020	.063	.091	.135	.220
Apr	.003	.004	.006	.007	.009	.014	.021	.031	.052	.095	.214
May	.001	.002	.004	.005	.006	.009	.012	.017	.023	.045	.081
Jun	.001	.002	.004	.005	.008	.012	.020	.032	.052	.104	.146
Jul	.001	.002	.007	.010	.017	.022	.027	.031	.035	.059	.091
Aug	.000	.001	.008	.011	.014	.017	.025	.044	.068	.111	.215
Sep	.000	.000	.002	.002	.007	.014	.025	.046	.067	.116	.345
Oct	.000	.000	.001	.003	.008	.012	.025	.051	.069	.113	.213
Nov	.000	.000	.000	.000	.002	.011	.034	.078	.116	.177	.237
Dec	.000	.000	.000	.000	.000	.007	.056	.113	.149	.231	.371
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.038	.017	.049	.380	738	n/a					
Feb	.019	.006	.028	.220	671	n/a					
Mar	.021	.009	.030	.220	673	n/a					
Apr	.019	.015	.019	.211	714	n/a					
May	.010	.009	.008	.080	740	n/a					
Jun	.018	.013	.018	.145	712	n/a					
Jul	.022	.019	.010	.090	739	n/a					
Aug	.024	.018	.022	.215	739	n/a					
Sep	.022	.011	.028	.345	720	n/a					
Oct	.021	.010	.025	.213	529	n/a					
Nov	.027	.002	.039	.237	680	n/a					
Dec	.036	.001	.056	.371	743	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.002	.007	.014	.025	.056	.090	.157	.380
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.023	.008	.032	.380	8398	n/a					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

NO Summary Statistics for 1991
 Calgary Downtown Monitoring Station
 Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.002	.003	.008	.026	.067	.153	.251	.467	.720
Spring	.000	.001	.001	.002	.003	.008	.021	.049	.078	.166	.432
Summer	.000	.000	.001	.001	.002	.005	.013	.031	.052	.109	.231
Autumn	.000	.000	.002	.002	.006	.019	.050	.115	.178	.356	.715
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.059	.020	.092	.720	2132	n/a					
Spring	.019	.008	.033	.432	2179	n/a					
Summer	.013	.005	.021	.231	2174	n/a					
Autumn	.045	.016	.071	.715	2155	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.002	.003	.008	.028	.078	.170	.277	.498	.720
Feb	.000	.000	.002	.003	.008	.022	.048	.107	.153	.295	.520
Mar	.000	.002	.003	.004	.008	.018	.039	.074	.116	.225	.432
Apr	.000	.000	.001	.001	.003	.005	.012	.036	.068	.128	.246
May	.000	.000	.001	.002	.002	.005	.012	.029	.045	.087	.146
Jun	.000	.000	.001	.001	.002	.005	.012	.028	.041	.072	.128
Jul	.000	.000	.001	.001	.002	.005	.011	.029	.050	.095	.217
Aug	.000	.000	.001	.001	.002	.006	.016	.038	.059	.146	.231
Sep	.000	.001	.002	.002	.004	.012	.029	.070	.105	.181	.318
Oct	.000	.001	.002	.002	.005	.016	.038	.078	.120	.231	.356
Nov	.000	.000	.002	.004	.012	.042	.099	.206	.296	.437	.715
Dec	.000	.000	.001	.002	.006	.027	.087	.177	.285	.472	.683
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.066	.025	.104	.719	736	n/a					
Feb	.042	.016	.060	.520	663	n/a					
Mar	.033	.018	.045	.431	736	n/a					
Apr	.014	.005	.026	.246	707	n/a					
May	.011	.005	.017	.146	736	n/a					
Jun	.011	.005	.016	.128	710	n/a					
Jul	.011	.004	.020	.217	729	n/a					
Aug	.015	.005	.027	.231	735	n/a					
Sep	.026	.011	.039	.318	712	n/a					
Oct	.033	.013	.048	.356	732	n/a					
Nov	.077	.026	.099	.715	711	n/a					
Dec	.068	.020	.101	.683	733	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.001	.002	.004	.011	.035	.087	.144	.333	.720
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.034	.010	.064	.720	8640	n/a					

n/a - not applicable

* - no data

NO Summary Statistics for 1991
 Calgary Residential Monitoring Station
 Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.001	.005	.018	.064	.140	.280	.440
Spring	.000	.000	.000	.000	.001	.002	.005	.013	.023	.073	.282
Summer	.000	.000	.000	.000	.001	.001	.003	.007	.012	.031	.103
Autumn	.000	.000	.000	.000	.001	.003	.013	.042	.071	.219	.478
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.024	.002	.054	.440	2143	n/a					
Spring	.006	.000	.018	.282	2192	n/a					
Summer	.003	.000	.006	.103	2055	n/a					
Autumn	.016	.001	.039	.478	2046	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.002	.006	.023	.062	.160	.293	.423
Feb	.000	.000	.001	.001	.002	.005	.015	.051	.105	.248	.440
Mar	.000	.000	.000	.001	.002	.004	.010	.024	.041	.148	.282
Apr	.000	.000	.000	.000	.000	.001	.003	.008	.016	.048	.068
May	.000	.000	.000	.000	.000	.001	.002	.006	.011	.032	.078
Jun	.000	.000	.000	.000	.001	.001	.002	.006	.009	.027	.060
Jul	.000	.000	.000	.001	.001	.001	.003	.008	.012	.024	.059
Aug	.000	.000	.000	.000	.000	.001	.003	.008	.014	.039	.103
Sep	.000	.000	.000	.000	.001	.003	.009	.021	.040	.082	.235
Oct	.000	.000	.000	.000	.001	.002	.006	.017	.029	.075	.278
Nov	.000	.000	.000	.001	.002	.009	.035	.092	.148	.277	.478
Dec	.000	.000	.000	.000	.000	.003	.018	.079	.163	.275	.407
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.026	.004	.057	.423	741	n/a					
Feb	.020	.004	.046	.440	669	n/a					
Mar	.012	.003	.028	.282	741	n/a					
Apr	.003	.000	.008	.068	711	n/a					
May	.003	.000	.006	.078	740	n/a					
Jun	.002	.001	.005	.060	716	n/a					
Jul	.003	.001	.005	.059	605	n/a					
Aug	.003	.000	.008	.103	734	n/a					
Sep	.009	.001	.020	.235	662	n/a					
Oct	.007	.001	.020	.278	671	n/a					
Nov	.032	.005	.057	.478	713	n/a					
Dec	.026	.000	.058	.407	733	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.000	.001	.002	.008	.026	.054	.204	.478
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.012	.001	.036	.478	8436	n/a					

n/a - not applicable

* - no data

NO Summary Statistics for 1991
 Calgary Industrial Monitoring Station
 Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.003	.034	.126	.246	.366	.619	1.097
Spring	.000	.000	.000	.001	.002	.008	.027	.078	.116	.247	.403
Summer	.000	.000	.000	.001	.002	.008	.021	.044	.065	.135	.236
Autumn	.000	.000	.000	.001	.005	.030	.096	.206	.314	.496	.994
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.088	.009	.129	1.097	1887	n/a					
Spring	.027	.004	.047	.403	2167	n/a					
Summer	.017	.004	.026	.236	2115	n/a					
Autumn	.074	.013	.110	.994	1890	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.002	.022	.091	.197	.345	.691	1.097
Feb	.000	.000	.000	.001	.002	.019	.065	.171	.231	.423	.686
Mar	.000	.000	.001	.001	.003	.014	.056	.128	.213	.317	.403
Apr	.000	.000	.000	.000	.001	.006	.020	.062	.085	.153	.197
May	.000	.000	.000	.001	.002	.007	.019	.044	.071	.131	.170
Jun	.000	.000	.000	.000	.002	.005	.016	.035	.052	.111	.150
Jul	.000	.000	.000	.001	.003	.011	.024	.049	.070	.135	.188
Aug	.000	.000	.001	.001	.003	.009	.021	.047	.075	.195	.236
Sep	.000	.000	.001	.001	.004	.019	.063	.128	.181	.343	.401
Oct	.000	.000	.000	.001	.003	.019	.067	.146	.196	.351	.510
Nov	.000	.000	.001	.002	.011	.059	.172	.326	.407	.652	.994
Dec	.000	.000	.000	.000	.009	.066	.183	.328	.422	.635	.862
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.074	.008	.131	1.097	666	n/a					
Feb	.055	.008	.088	.686	486	n/a					
Mar	.044	.008	.068	.403	739	n/a					
Apr	.019	.002	.030	.197	693	n/a					
May	.017	.003	.026	.170	735	n/a					
Jun	.013	.002	.020	.150	696	n/a					
Jul	.019	.006	.026	.188	739	n/a					
Aug	.020	.006	.031	.236	680	n/a					
Sep	.046	.010	.065	.401	439	n/a					
Oct	.049	.008	.071	.510	743	n/a					
Nov	.117	.026	.146	.994	708	n/a					
Dec	.121	.013	.142	.862	735	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.001	.003	.013	.052	.147	.230	.443	1.097
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.050	.006	.092	1.097	8059	n/a					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

NO Summary Statistics for 1991
Fort Saskatchewan Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.002	.008	.028	.066	.099	.178	.334
Spring	.000	.000	.001	.001	.003	.006	.010	.014	.018	.050	.112
Summer	.000	.000	.001	.001	.003	.005	.008	.014	.018	.029	.056
Autumn	.000	.000	.000	.001	.004	.009	.020	.036	.059	.109	.161
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.023	.005	.037	.334	1967	n/a					
Spring	.008	.004	.009	.112	2107	n/a					
Summer	.006	.004	.006	.056	2198	n/a					
Autumn	.016	.005	.021	.161	2030	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.001	.001	.002	.008	.024	.058	.077	.175	.334
Feb	.000	.000	.000	.001	.001	.003	.009	.029	.050	.103	.201
Mar	.000	.000	.001	.001	.002	.005	.011	.022	.033	.069	.112
Apr	.000	.000	.001	.001	.003	.005	.007	.009	.011	.018	.066
May	.000	.000	.001	.002	.005	.009	.011	.013	.015	.021	.108
Jun	.000	.000	.000	.001	.001	.002	.005	.010	.016	.025	.056
Jul	.000	.000	.001	.001	.003	.005	.008	.011	.015	.024	.036
Aug	.001	.002	.004	.004	.005	.007	.011	.017	.020	.029	.041
Sep	.000	.001	.002	.003	.006	.010	.021	.034	.040	.066	.109
Oct	.000	.000	.000	.000	.002	.006	.015	.029	.047	.090	.136
Nov	.000	.000	.000	.000	.004	.012	.025	.058	.081	.125	.161
Dec	.000	.000	.000	.002	.009	.024	.059	.106	.142	.206	.260
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.021	.006	.036	.334	733	n/a					
Feb	.010	.002	.020	.201	672	n/a					
Mar	.009	.004	.013	.112	735	n/a					
Apr	.005	.003	.005	.066	717	n/a					
May	.008	.005	.006	.108	655	n/a					
Jun	.004	.002	.006	.056	712	n/a					
Jul	.006	.004	.005	.036	742	n/a					
Aug	.009	.007	.006	.040	744	n/a					
Sep	.015	.010	.014	.109	662	n/a					
Oct	.013	.003	.018	.136	735	n/a					
Nov	.021	.004	.027	.161	633	n/a					
Dec	.042	.012	.046	.260	562	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.001	.001	.003	.006	.013	.029	.052	.116	.334
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.013	.004	.023	.334	8302	n/a					

n/a - not applicable

* - no data

NO Summary Statistics for 1991
Fort McMurray Monitoring Station
Units are PPM (parts per million)

No regulations											

BY SEASON											

SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.002	.005	.014	.033	.050	.126	.250
Spring	.000	.000	.000	.001	.002	.005	.012	.026	.042	.087	.274
Summer	.000	.000	.000	.001	.003	.005	.009	.014	.018	.030	.060
Autumn	.000	.000	.001	.002	.002	.004	.009	.020	.033	.075	.187
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.013	.003	.024	.250	2118	n/a					
Spring	.011	.004	.018	.274	2200	n/a					
Summer	.007	.003	.006	.060	2178	n/a					
Autumn	.009	.004	.014	.187	1988	n/a					
BY MONTH											

MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.002	.006	.013	.027	.039	.099	.196
Feb	.000	.000	.000	.000	.001	.003	.011	.035	.064	.140	.201
Mar	.000	.000	.000	.000	.001	.004	.013	.033	.061	.129	.274
Apr	.000	.000	.001	.001	.002	.003	.004	.008	.016	.035	.094
May	.000	.001	.002	.003	.005	.010	.018	.032	.046	.057	.071
Jun	.000	.000	.001	.001	.002	.004	.007	.012	.015	.021	.032
Jul	.000	.000	.000	.000	.002	.005	.009	.014	.016	.022	.030
Aug	.000	.000	.000	.001	.003	.006	.011	.018	.023	.040	.060
Sep	.000	.000	.001	.001	.002	.003	.008	.018	.028	.046	.082
Oct	.001	.002	.002	.002	.002	.004	.008	.018	.035	.068	.090
Nov	.000	.000	.002	.002	.003	.005	.011	.024	.040	.094	.187
Dec	.000	.000	.000	.000	.003	.006	.019	.040	.050	.110	.250
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.012	.004	.019	.196	740	n/a					
Feb	.013	.002	.027	.201	669	n/a					
Mar	.013	.002	.027	.274	744	n/a					
Apr	.005	.003	.007	.094	720	n/a					
May	.014	.009	.013	.071	736	n/a					
Jun	.006	.003	.005	.032	696	n/a					
Jul	.006	.002	.005	.030	738	n/a					
Aug	.008	.004	.008	.060	744	n/a					
Sep	.007	.003	.010	.082	715	n/a					
Oct	.009	.005	.013	.089	554	n/a					
Nov	.011	.005	.018	.187	719	n/a					
Dec	.016	.004	.025	.250	709	n/a					
BY YEAR											

YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.001	.002	.005	.011	.022	.036	.088	.274
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.010	.003	.017	.274	8484	n/a					

n/a - not applicable

* - no data

Annual Average Concentration									
Year: 1991									
Pollutant: NO [ppm]									
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	Fort Mackay
1976	**	**	**	**	**	**	*	**	*
1977	**	**	**	**	**	**	*	*	*
1978	**	**	**	**	**	**	*	*	*
1979	**	**	**	**	**	**	*	**a	*
1980	**	**	**	**	**	**	*	b	*
1981	**	**	**	**	**	**	b	**	*
1982	**	**	**	**	**	**	**	**	*
1983	**	**	**	**	**	**	**	**	b
1984	**	**	**	**	**	**	**	**a	**
1985	**	**	**	**	**	**	**	**a	**
1986	**	**	**	**	**	**	**	**	**
1987	0.041	0.046	0.017	0.036	0.013	0.051	0.016	0.011	b
1988	0.036	0.036	0.017	0.039	0.013	0.056	0.013	0.010	*
1989	0.037	0.034	0.017	0.032	0.011	0.047	0.011a	0.009	*
1990	0.034	0.037	0.020	0.029	0.010	0.043	0.012	0.012	*
1991	0.035	0.042	0.023	0.034	0.012	0.049	0.013	0.010	*

a ≥ 50% to < 75% of data available

b less than 50% of data available

** annual average not calculated

* no data available

NOX Summary Statistics for 1991
Edmonton Central Monitoring Station
Units are PPM (parts per million)

No regulations											

--BY SEASON--											

SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.008	.014	.020	.026	.041	.066	.105	.175	.231	.391	.686
Spring	.006	.011	.017	.020	.030	.044	.066	.103	.138	.265	.428
Summer	.005	.008	.011	.014	.022	.034	.048	.067	.084	.127	.202
Autumn	.007	.011	.017	.021	.033	.055	.084	.126	.158	.235	.480
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.088	.067	.077	.678	2145	n/a					
Spring	.057	.045	.047	.422	2167	n/a					
Summer	.039	.032	.024	.197	2181	n/a					
Autumn	.067	.053	.050	.473	2154	n/a					
--BY MONTH--											

MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.008	.011	.018	.025	.038	.063	.092	.151	.200	.288	.388
Feb	.010	.014	.019	.024	.038	.061	.096	.136	.165	.242	.300
Mar	.011	.017	.021	.025	.039	.060	.093	.149	.212	.319	.428
Apr	.009	.010	.018	.022	.031	.043	.061	.096	.119	.206	.268
May	.006	.010	.014	.017	.023	.036	.049	.065	.079	.111	.185
Jun	.005	.008	.011	.015	.023	.036	.051	.071	.089	.126	.202
Jul	.005	.008	.011	.014	.022	.033	.043	.054	.066	.103	.191
Aug	.005	.007	.011	.013	.021	.034	.051	.071	.088	.145	.191
Sep	.007	.008	.012	.016	.025	.045	.064	.093	.118	.201	.455
Oct	.013	.015	.020	.023	.036	.057	.083	.121	.140	.210	.480
Nov	.010	.015	.022	.028	.041	.067	.104	.156	.193	.305	.450
Dec	.012	.014	.024	.031	.047	.077	.136	.235	.327	.543	.686
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.077	.061	.058	.380	739	n/a					
Feb	.072	.059	.048	.290	666	n/a					
Mar	.078	.062	.063	.417	739	n/a					
Apr	.053	.044	.036	.259	684	n/a					
May	.040	.035	.022	.179	744	n/a					
Jun	.040	.034	.025	.197	720	n/a					
Jul	.035	.030	.020	.186	731	n/a					
Aug	.040	.033	.027	.186	730	n/a					
Sep	.052	.041	.042	.448	717	n/a					
Oct	.066	.055	.043	.467	739	n/a					
Nov	.083	.067	.059	.440	698	n/a					
Dec	.112	.081	.104	.674	740	n/a					
--BY YEAR--											

YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.005	.010	.015	.019	.030	.047	.075	.118	.164	.296	.686
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.062	.048	.056	.681	8647	n/a					

n/a - not applicable

* - no data

NOX Summary Statistics for 1991
Edmonton Northwest Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.005	.011	.018	.035	.071	.144	.251	.328	.636	.911
Spring	.001	.004	.007	.010	.018	.031	.065	.121	.177	.338	.665
Summer	.003	.004	.007	.009	.014	.021	.036	.060	.081	.135	.213
Autumn	.001	.004	.007	.011	.022	.047	.090	.157	.223	.381	.742
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.112	.068	.119	.911	2138	n/a					
Spring	.054	.033	.065	.664	2189	n/a					
Summer	.030	.023	.026	.210	2049	n/a					
Autumn	.071	.044	.077	.741	2174	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.005	.009	.014	.031	.069	.140	.238	.306	.513	.828
Feb	.000	.004	.012	.019	.035	.063	.121	.217	.283	.457	.805
Mar	.003	.004	.011	.017	.028	.055	.103	.177	.245	.422	.665
Apr	.004	.004	.006	.009	.017	.030	.061	.111	.152	.247	.527
May	.001	.003	.005	.008	.013	.022	.037	.064	.093	.197	.391
Jun	.003	.004	.005	.009	.014	.021	.039	.066	.089	.152	.213
Jul	.004	.005	.007	.011	.015	.021	.032	.054	.067	.101	.145
Aug	.003	.005	.007	.009	.014	.022	.037	.063	.085	.140	.196
Sep	.001	.002	.006	.009	.016	.032	.067	.118	.181	.306	.533
Oct	.003	.004	.008	.012	.022	.043	.086	.143	.204	.366	.569
Nov	.003	.005	.009	.016	.034	.064	.118	.208	.269	.400	.742
Dec	.004	.007	.013	.018	.040	.085	.171	.300	.404	.724	.911
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.104	.064	.106	.825	740	n/a					
Feb	.097	.062	.101	.805	661	n/a					
Mar	.080	.053	.083	.662	739	n/a					
Apr	.049	.031	.054	.523	711	n/a					
May	.033	.022	.038	.390	739	n/a					
Jun	.032	.023	.029	.210	594	n/a					
Jul	.027	.022	.020	.141	717	n/a					
Aug	.031	.023	.027	.193	738	n/a					
Sep	.055	.033	.065	.532	718	n/a					
Oct	.066	.043	.069	.566	740	n/a					
Nov	.093	.061	.091	.739	716	n/a					
Dec	.132	.080	.142	.907	737	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.004	.008	.011	.019	.037	.080	.156	.229	.422	.911
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.067	.039	.085	.911	8550	n/a					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

NOX Summary Statistics for 1991
Edmonton East Monitoring Station
Units are PPM (parts per million)

No regulations											

-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.002	.007	.010	.017	.037	.084	.148	.187	.278	.506
Spring	.003	.007	.010	.011	.016	.025	.039	.066	.098	.161	.263
Summer	.004	.008	.012	.015	.023	.031	.042	.060	.080	.128	.247
Autumn	.000	.001	.006	.009	.018	.031	.058	.103	.142	.250	.418
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.061	.034	.064	.506	2152	n/a					
Spring	.034	.026	.030	.260	2127	n/a					
Summer	.036	.031	.024	.243	2181	n/a					
Autumn	.047	.028	.048	.418	1929	n/a					

-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.006	.008	.010	.013	.022	.046	.094	.149	.178	.254	.441
Feb	.004	.005	.007	.009	.015	.027	.050	.094	.121	.173	.260
Mar	.004	.006	.009	.011	.019	.030	.053	.105	.140	.182	.263
Apr	.008	.010	.013	.014	.020	.029	.041	.065	.093	.138	.251
May	.003	.006	.008	.010	.013	.019	.026	.037	.047	.074	.114
Jun	.005	.007	.010	.013	.018	.026	.037	.054	.075	.125	.178
Jul	.004	.008	.015	.020	.027	.034	.042	.050	.062	.091	.123
Aug	.007	.010	.014	.018	.023	.032	.048	.071	.110	.148	.247
Sep	.000	.004	.007	.009	.016	.029	.050	.086	.109	.166	.418
Oct	.001	.002	.010	.013	.020	.028	.050	.090	.115	.170	.218
Nov	.000	.000	.004	.008	.018	.034	.077	.136	.190	.276	.362
Dec	.000	.000	.003	.006	.016	.040	.110	.187	.234	.340	.506
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.066	.045	.061	.435	738	n/a					
Feb	.040	.028	.038	.256	671	n/a					
Mar	.045	.032	.041	.259	673	n/a					
Apr	.036	.030	.027	.243	714	n/a					
May	.022	.019	.014	.111	740	n/a					
Jun	.032	.026	.023	.173	712	n/a					
Jul	.036	.033	.015	.119	735	n/a					
Aug	.041	.034	.030	.240	734	n/a					
Sep	.040	.028	.039	.418	720	n/a					
Oct	.042	.031	.035	.217	528	n/a					
Nov	.058	.028	.061	.362	681	n/a					
Dec	.074	.033	.080	.506	743	n/a					

-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.004	.008	.011	.019	.030	.050	.098	.137	.227	.506
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.044	.030	.046	.506	8389	n/a					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

NOX Summary Statistics for 1991
 Calgary Downtown Monitoring Station
 Units are PPM (parts per million)

No regulations											

-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.011	.017	.023	.029	.044	.070	.118	.210	.318	.559	.930
Spring	.008	.012	.017	.022	.032	.047	.071	.107	.137	.232	.513
Summer	.007	.011	.014	.018	.025	.033	.049	.070	.092	.153	.274
Autumn	.008	.012	.017	.022	.033	.055	.092	.162	.232	.421	.804
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.103	.075	.104	.919	2132	n/a					
Spring	.059	.048	.044	.505	2179	n/a					
Summer	.041	.034	.027	.267	2174	n/a					
Autumn	.080	.058	.081	.796	2155	n/a					

-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.016	.019	.024	.031	.045	.075	.130	.239	.351	.716	.930
Feb	.011	.018	.026	.033	.048	.068	.099	.167	.216	.373	.600
Mar	.021	.026	.031	.043	.051	.069	.098	.136	.180	.331	.513
Apr	.008	.011	.014	.020	.029	.042	.058	.089	.128	.191	.302
May	.009	.011	.015	.018	.025	.036	.051	.073	.087	.146	.194
Jun	.010	.011	.014	.017	.023	.032	.047	.066	.083	.120	.175
Jul	.008	.010	.015	.018	.023	.034	.048	.070	.089	.139	.260
Aug	.007	.011	.015	.018	.024	.034	.052	.076	.101	.202	.274
Sep	.008	.011	.015	.020	.027	.042	.069	.108	.142	.230	.362
Oct	.009	.013	.017	.022	.032	.050	.079	.127	.169	.330	.464
Nov	.009	.014	.023	.032	.049	.084	.147	.266	.369	.532	.804
Dec	.013	.016	.021	.026	.040	.070	.136	.233	.345	.555	.771
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.114	.080	.121	.914	736	n/a					
Feb	.086	.070	.067	.589	663	n/a					
Mar	.083	.072	.054	.492	736	n/a					
Apr	.050	.042	.035	.294	707	n/a					
May	.042	.036	.026	.185	736	n/a					
Jun	.038	.033	.022	.165	710	n/a					
Jul	.040	.034	.026	.252	729	n/a					
Aug	.043	.036	.033	.267	735	n/a					
Sep	.055	.043	.045	.354	712	n/a					
Oct	.066	.052	.057	.455	732	n/a					
Nov	.120	.086	.111	.795	711	n/a					
Dec	.109	.075	.111	.758	733	n/a					

-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.007	.012	.017	.021	.031	.048	.080	.137	.198	.405	.930
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.071	.052	.074	.923	8640	n/a					

n/a - not applicable

* - no data

NOX Summary Statistics for 1991
 Calgary Residential Monitoring Station
 Units are PPM (parts per million)

No regulations											

-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.002	.004	.007	.009	.014	.026	.051	.107	.188	.341	.500
Spring	.002	.003	.004	.005	.009	.015	.027	.045	.063	.126	.341
Summer	.001	.002	.004	.005	.007	.011	.017	.026	.034	.062	.138
Autumn	.001	.002	.004	.006	.011	.021	.039	.078	.113	.268	.538
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.048	.028	.065	.498	2143	n/a					
Spring	.023	.016	.026	.339	2192	n/a					
Summer	.014	.011	.011	.137	2055	n/a					
Autumn	.036	.021	.048	.538	2059	n/a					

-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.004	.005	.007	.009	.015	.028	.056	.107	.219	.360	.497
Feb	.002	.003	.006	.008	.013	.024	.044	.090	.149	.289	.500
Mar	.003	.005	.008	.010	.016	.024	.038	.066	.093	.204	.341
Apr	.002	.002	.004	.004	.007	.011	.021	.035	.048	.088	.103
May	.002	.003	.004	.005	.008	.012	.019	.030	.041	.063	.127
Jun	.002	.002	.003	.004	.007	.010	.015	.023	.030	.056	.091
Jul	.002	.002	.003	.004	.007	.011	.018	.027	.035	.052	.093
Aug	.001	.003	.004	.005	.008	.013	.019	.027	.040	.067	.138
Sep	.001	.001	.003	.004	.008	.014	.028	.046	.069	.113	.273
Oct	.002	.003	.004	.006	.010	.017	.030	.049	.064	.113	.331
Nov	.002	.003	.007	.010	.019	.036	.070	.138	.202	.327	.538
Dec	.003	.003	.007	.011	.015	.028	.054	.123	.220	.323	.470
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.051	.030	.070	.493	741	n/a					
Feb	.041	.025	.055	.498	669	n/a					
Mar	.035	.025	.038	.338	741	n/a					
Apr	.017	.012	.016	.101	711	n/a					
May	.016	.012	.013	.125	740	n/a					
Jun	.013	.010	.010	.089	716	n/a					
Jul	.014	.011	.011	.091	605	n/a					
Aug	.016	.012	.013	.137	734	n/a					
Sep	.022	.014	.027	.273	676	n/a					
Oct	.024	.017	.027	.329	671	n/a					
Nov	.059	.036	.067	.536	712	n/a					
Dec	.052	.030	.068	.467	733	n/a					

-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.001	.003	.004	.006	.009	.017	.031	.061	.097	.259	.538
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.030	.018	.045	.538	8449	n/a					

n/a - not applicable * - no data											

n/a - not applicable

* - no data

NOX Summary Statistics for 1991
 Calgary Industrial Monitoring Station
 Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.004	.006	.009	.013	.025	.068	.166	.294	.411	.669	1.264
Spring	.003	.004	.008	.011	.019	.035	.063	.121	.162	.300	.467
Summer	.005	.007	.009	.012	.019	.031	.048	.073	.094	.162	.265
Autumn	.005	.008	.010	.014	.026	.059	.131	.248	.363	.566	1.132
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.120	.064	.142	1.260	1887	n/a					
Spring	.053	.035	.057	.464	2167	n/a					
Summer	.039	.030	.030	.260	2115	n/a					
Autumn	.103	.059	.122	1.127	1890	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.004	.008	.010	.013	.021	.058	.135	.246	.419	.797	1.264
Feb	.004	.008	.010	.018	.023	.047	.099	.219	.280	.469	.750
Mar	.003	.004	.010	.014	.026	.049	.101	.177	.258	.376	.467
Apr	.003	.004	.005	.007	.012	.025	.051	.101	.129	.193	.238
May	.008	.009	.012	.014	.021	.033	.049	.080	.110	.171	.204
Jun	.005	.006	.008	.009	.016	.026	.044	.066	.084	.135	.175
Jul	.007	.008	.010	.012	.020	.035	.053	.076	.101	.162	.210
Aug	.008	.009	.012	.014	.020	.032	.049	.076	.105	.222	.265
Sep	.007	.008	.010	.012	.020	.043	.088	.157	.207	.375	.436
Oct	.005	.007	.010	.014	.022	.046	.097	.176	.235	.398	.572
Nov	.005	.007	.012	.018	.040	.094	.217	.378	.484	.733	1.132
Dec	.004	.005	.008	.012	.035	.101	.228	.372	.476	.693	.935
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.108	.057	.149	1.260	666	n/a					
Feb	.083	.050	.096	.746	486	n/a					
Mar	.078	.050	.078	.464	739	n/a					
Apr	.040	.026	.041	.235	693	n/a					
May	.042	.033	.032	.196	735	n/a					
Jun	.034	.026	.026	.170	696	n/a					
Jul	.041	.033	.030	.203	739	n/a					
Aug	.041	.033	.035	.257	680	n/a					
Sep	.067	.043	.070	.429	439	n/a					
Oct	.075	.048	.079	.567	743	n/a					
Nov	.154	.090	.161	1.127	708	n/a					
Dec	.154	.084	.152	.931	735	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.003	.006	.009	.012	.021	.041	.086	.186	.275	.498	1.264
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.077	.044	.102	1.261	8059	n/a					

n/a - not applicable

* - no data

NOX Summary Statistics for 1991
Fort Saskatchewan Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.003	.009	.024	.060	.109	.146	.234	.400
Spring	.000	.001	.003	.005	.008	.014	.021	.035	.048	.093	.172
Summer	.000	.001	.002	.004	.007	.011	.017	.026	.032	.052	.099
Autumn	.000	.000	.002	.004	.009	.018	.035	.062	.091	.149	.206
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.044	.020	.051	.400	1967	n/a					
Spring	.018	.013	.017	.172	2078	n/a					
Summer	.014	.010	.010	.099	2198	n/a					
Autumn	.028	.015	.029	.206	2030	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.002	.003	.007	.019	.058	.099	.119	.233	.400
Feb	.001	.001	.002	.003	.006	.013	.029	.058	.084	.139	.234
Mar	.001	.001	.002	.004	.008	.016	.031	.052	.073	.111	.172
Apr	.001	.001	.003	.004	.007	.010	.014	.023	.029	.048	.094
May	.000	.001	.005	.007	.011	.016	.021	.028	.033	.043	.112
Jun	.000	.000	.001	.002	.004	.007	.013	.024	.029	.045	.099
Jul	.002	.004	.005	.006	.008	.010	.016	.023	.028	.046	.067
Aug	.005	.006	.007	.008	.010	.015	.022	.031	.036	.057	.089
Sep	.001	.003	.006	.008	.011	.017	.033	.049	.062	.087	.131
Oct	.000	.001	.002	.003	.006	.014	.029	.056	.076	.125	.190
Nov	.000	.000	.001	.004	.013	.026	.044	.091	.118	.166	.206
Dec	.000	.000	.006	.016	.034	.055	.100	.160	.202	.269	.345
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.039	.018	.049	.400	733	n/a					
Feb	.024	.013	.029	.233	672	n/a					
Mar	.024	.016	.024	.171	735	n/a					
Apr	.012	.010	.010	.093	688	n/a					
May	.017	.014	.009	.112	655	n/a					
Jun	.010	.006	.010	.099	712	n/a					
Jul	.013	.011	.008	.065	742	n/a					
Aug	.017	.015	.010	.084	744	n/a					
Sep	.025	.019	.019	.130	662	n/a					
Oct	.023	.013	.026	.190	735	n/a					
Nov	.037	.015	.037	.206	633	n/a					
Dec	.073	.041	.060	.345	562	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.001	.002	.004	.008	.015	.029	.058	.088	.164	.400
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.025	.014	.032	.400	8273	n/a					

n/a - not applicable

* - no data

NOX Summary Statistics for 1991
Fort McMurray Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.004	.008	.016	.031	.057	.080	.162	.287
Spring	.000	.002	.003	.004	.007	.013	.025	.046	.063	.128	.337
Summer	.000	.000	.001	.002	.005	.009	.015	.022	.027	.045	.157
Autumn	.000	.001	.002	.002	.004	.009	.021	.038	.054	.104	.226
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	.026	.015	.031	.287	2118	n/a					
Spring	.021	.013	.026	.337	2200	n/a					
Summer	.011	.006	.010	.157	2178	n/a					
Autumn	.017	.009	.020	.226	1988	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.001	.002	.003	.004	.008	.017	.031	.048	.063	.130	.218
Feb	.001	.001	.001	.002	.006	.013	.028	.060	.092	.181	.250
Mar	.000	.001	.002	.003	.007	.016	.034	.067	.097	.176	.337
Apr	.002	.002	.003	.003	.005	.009	.015	.026	.041	.064	.137
May	.002	.003	.006	.008	.010	.017	.028	.044	.056	.066	.108
Jun	.000	.001	.002	.003	.004	.008	.013	.019	.024	.031	.050
Jul	.000	.000	.000	.002	.004	.008	.014	.021	.025	.036	.055
Aug	.000	.000	.002	.003	.006	.010	.017	.025	.032	.056	.157
Sep	.000	.000	.001	.002	.004	.007	.016	.032	.047	.065	.108
Oct	.001	.001	.002	.002	.004	.009	.019	.038	.058	.099	.128
Nov	.001	.002	.002	.003	.006	.014	.026	.044	.065	.124	.226
Dec	.000	.002	.004	.005	.010	.018	.035	.060	.080	.150	.287
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	.024	.016	.025	.217	740	n/a					
Feb	.026	.013	.035	.249	669	n/a					
Mar	.028	.015	.038	.337	744	n/a					
Apr	.013	.009	.014	.135	720	n/a					
May	.022	.017	.015	.106	736	n/a					
Jun	.010	.007	.007	.050	696	n/a					
Jul	.010	.005	.008	.055	738	n/a					
Aug	.013	.008	.012	.157	744	n/a					
Sep	.013	.006	.014	.108	715	n/a					
Oct	.016	.009	.020	.127	554	n/a					
Nov	.021	.013	.024	.225	719	n/a					
Dec	.028	.017	.031	.287	709	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.001	.002	.003	.006	.011	.022	.040	.060	.124	.337
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	.019	.010	.024	.337	8484	n/a					

n/a - not applicable

* - no data

Annual Average Concentration										
Year: 1991										
Pollutant: NOX [ppm]										

Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort	Fort	Fort	
							Sask.	McMurray	Mackay	

1976	**	**	**	**	**	**	*	**	*	
1977	**	**	**	**	**	**	*	*	*	
1978	**	**	**	**	**	**	*	*	*	
1979	**	**	**	**	**	**	*	**a	*	
1980	**	**	**	**	**	**	*	b	*	
1981	**	**	**	**	**	**	b	**	*	
1982	**	**	**	**	**	**	**	**	*	
1983	**	**	**	**	**	**	**	**	b	
1984	**	**	**	**	**	**	**	**a	**	
1985	**	**	**	**	**	**	**	**a	**	
1986	**	**	**	**	**	**	**	**	**	
1987	0.071	0.066	0.032	0.070	0.032	0.076	0.030	0.020	b	
1988	0.063	0.055	0.032	0.075	0.032	0.082	0.026	0.019	*	
1989	0.061	0.054	0.032	0.067	0.031	0.075	0.020a	0.018	*	
1990	0.060	0.062	0.038	0.062	0.027	0.070	0.025	0.022	*	
1991	0.062	0.067	0.044	0.071	0.030	0.076	0.025	0.019	*	

a $\geq 50\%$ to $< 75\%$ of data available

b less than 50% data available

** annual average not calculated

* no data available

O3 Summary Statistics for 1991
Edmonton Central Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .082 PPM											
	Ambient 24-hour average regulation = .025 PPM											
	-----BY SEASON-----											
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Winter	.000	.000	.001	.001	.002	.008	.016	.025	.029	.034	.040
	Spring	.000	.001	.002	.004	.012	.024	.034	.042	.047	.057	.062
	Summer	.001	.001	.003	.006	.013	.022	.030	.039	.044	.050	.066
	Autumn	.000	.001	.001	.001	.004	.010	.016	.023	.027	.034	.039

	SEASON	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	Winter	.010		.005		.009		.040	2154	0(0.00%)	3(3.33%)	
	Spring	.024		.017		.014		.062	2205	0(0.00%)	36(39.13%)	
	Summer	.022		.018		.012		.065	2203	0(0.00%)	22(23.91%)	
	Autumn	.011		.007		.008		.039	2179	0(0.00%)	1(1.10%)	
	-----BY MONTH-----											
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Jan	.000	.000	.001	.001	.003	.009	.018	.026	.029	.033	.035
	Feb	.000	.000	.001	.001	.003	.008	.015	.024	.028	.035	.040
	Mar	.000	.001	.001	.002	.007	.016	.027	.034	.038	.057	.062
	Apr	.001	.001	.002	.005	.013	.025	.036	.041	.046	.053	.059
	May	.001	.002	.006	.010	.021	.031	.038	.045	.050	.057	.060
	Jun	.001	.001	.003	.004	.012	.021	.030	.037	.042	.048	.050
	Jul	.001	.002	.005	.008	.014	.023	.031	.039	.043	.048	.053
	Aug	.001	.001	.003	.005	.011	.021	.031	.042	.047	.055	.066
	Sep	.000	.001	.001	.002	.005	.011	.018	.024	.029	.034	.039
	Oct	.001	.001	.001	.002	.005	.011	.018	.024	.027	.033	.038
	Nov	.000	.001	.001	.001	.002	.007	.013	.019	.024	.032	.036
	Dec	.000	.000	.001	.001	.002	.005	.013	.023	.027	.034	.039

	MONTH	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	Jan	.011		.005		.009		.035	742	0(0.00%)	2(6.45%)	
	Feb	.010		.005		.009		.040	670	0(0.00%)	1(3.57%)	
	Mar	.018		.012		.013		.062	742	0(0.00%)	5(16.13%)	
	Apr	.024		.018		.014		.058	719	0(0.00%)	11(36.67%)	
	May	.029		.025		.013		.059	744	0(0.00%)	20(64.52%)	
	Jun	.021		.017		.012		.049	720	0(0.00%)	7(23.33%)	
	Jul	.023		.019		.011		.052	741	0(0.00%)	8(25.81%)	
	Aug	.022		.017		.013		.065	742	0(0.00%)	7(22.58%)	
	Sep	.012		.008		.009		.039	718	0(0.00%)	1(3.33%)	
	Oct	.012		.008		.008		.037	742	0(0.00%)	0(0.00%)	
	Nov	.009		.005		.008		.036	719	0(0.00%)	0(0.00%)	
	Dec	.009		.004		.009		.039	742	0(0.00%)	0(0.00%)	
	-----BY YEAR-----											
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	1991	.000	.001	.001	.002	.006	.014	.026	.035	.041	.051	.066

	YEAR	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	1991	.017		.010		.013		.066	8741	0(0.00%)	62(16.99%)	

n/a - not applicable

* - no data

O3 Summary Statistics for 1991
Edmonton Northwest Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .082 PPM											
	Ambient 24-hour average regulation = .025 PPM											
	-----BY SEASON-----											
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Winter	.000	.000	.000	.000	.001	.007	.020	.034	.038	.042	.046
	Spring	.000	.000	.000	.001	.011	.031	.045	.056	.061	.069	.077
	Summer	.000	.000	.001	.003	.014	.027	.038	.050	.055	.061	.102
	Autumn	.000	.000	.000	.000	.002	.010	.020	.027	.030	.036	.044
	SEASON	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	Winter	.012		.001		.013		.046	2153	0(0.00%)	10(11.11%)	
	Spring	.030		.011		.020		.077	2160	0(0.00%)	61(69.32%)	
	Summer	.027		.014		.016		.102	2167	3(0.14%)	51(56.67%)	
	Autumn	.012		.003		.010		.044	2180	0(0.00%)	2(2.20%)	
	-----BY MONTH-----											
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Jan	.000	.000	.000	.000	.001	.010	.028	.037	.039	.041	.042
	Feb	.000	.000	.000	.000	.002	.010	.022	.032	.038	.045	.046
	Mar	.000	.000	.000	.000	.004	.020	.035	.043	.050	.057	.062
	Apr	.000	.000	.000	.001	.012	.033	.046	.056	.061	.069	.074
	May	.000	.000	.002	.007	.025	.040	.052	.061	.065	.070	.077
	Jun	.000	.000	.001	.005	.017	.028	.041	.051	.055	.060	.068
	Jul	.000	.000	.002	.005	.016	.030	.039	.050	.055	.059	.063
	Aug	.000	.000	.000	.002	.008	.021	.033	.047	.054	.064	.102
	Sep	.000	.000	.000	.000	.004	.012	.021	.028	.031	.035	.044
	Oct	.000	.000	.000	.001	.003	.013	.023	.027	.030	.037	.041
	Nov	.000	.000	.000	.000	.001	.005	.013	.023	.028	.034	.037
	Dec	.000	.000	.000	.000	.000	.003	.011	.023	.030	.038	.044
	MONTH	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	Jan	.015		.002		.014		.042	742	0(0.00%)	8(25.81%)	
	Feb	.013		.002		.013		.046	669	0(0.00%)	2(7.14%)	
	Mar	.021		.004		.017		.062	742	0(0.00%)	10(32.26%)	
	Apr	.031		.012		.020		.074	676	0(0.00%)	21(80.77%)	
	May	.037		.022		.019		.077	742	0(0.00%)	30(96.77%)	
	Jun	.029		.015		.016		.068	720	0(0.00%)	20(66.67%)	
	Jul	.029		.018		.015		.063	706	0(0.00%)	20(68.97%)	
	Aug	.023		.009		.017		.102	741	3(0.40%)	11(35.48%)	
	Sep	.013		.004		.010		.044	720	0(0.00%)	1(3.33%)	
	Oct	.014		.005		.010		.041	742	0(0.00%)	1(3.23%)	
	Nov	.009		.002		.009		.037	718	0(0.00%)	0(0.00%)	
	Dec	.007		.001		.010		.044	742	0(0.00%)	0(0.00%)	
	-----BY YEAR-----											
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	1991	.000	.000	.000	.000	.004	.017	.032	.045	.053	.063	.102
	YEAR	Arithmetic		Geometric		Arithmetic		Range	N	Number of Exceedances		
		Mean		Mean		Std Dev				1 hour	24 hour	
	1991	.020		.005		.017		.102	8660	3(0.03%)	124(34.54%)	

n/a - not applicable

* - no data

Wind Summary for 1991
Edmonton Northwest Monitoring Station

** calculation is for exceedances of the 1-hour regulation for O3 **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	0	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	1	0	0	0	0	0	0	0	1	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	1	0	0	0	0	0	0	0	1	
S	0	0	1	0	0	0	0	0	0	1	
SSW	0	0	0	0	0	0	0	0	0	0	
SW	0	0	0	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	0	0	0	
TOTAL	0	2	1	0	0	0	0	0	0	3	
CALM = 0 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	33.3	.0	.0	.0	.0	.0	.0	.0	33.3	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	33.3	.0	.0	.0	.0	.0	.0	.0	33.3	
S	.0	.0	33.3	.0	.0	.0	.0	.0	.0	33.3	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
TOTAL	.0	66.7	33.3	.0	.0	.0	.0	.0	.0	100.0	
CALM = .00%											
MISSING DATA = .00%											

Wind Summary for 1991

Edmonton Northwest Monitoring Station

** calculation is for exceedances of the 24-hour regulation for O3 **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	54	94	70	50	23	3	0	0	0	294
NNE	33	44	21	25	6	1	2	0	0	132
NE	18	37	30	14	2	0	0	0	0	101
ENE	14	21	23	11	0	1	0	0	0	70
E	14	29	29	8	5	5	0	0	0	90
ESE	22	32	34	27	7	0	0	0	0	122
SE	18	50	75	71	24	10	0	0	0	248
SSE	19	57	81	41	29	6	0	0	0	233
S	26	84	67	23	20	3	0	0	0	223
SSW	26	71	24	2	0	0	0	0	0	123
SW	25	45	16	2	0	0	0	0	0	88
WSW	26	59	25	6	4	1	0	0	0	121
W	33	88	76	15	15	9	1	0	0	237
WNW	23	76	85	64	44	38	2	0	0	332
NW	39	45	72	50	23	23	5	0	0	257
NNW	41	70	43	51	24	6	0	0	0	235
TOTAL	431	902	771	460	226	106	10	0	0	2906
CALM =	65 hours									
MISSING DATA =	5 hours									

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	1.8	3.2	2.4	1.7	.8	.1	.0	.0	.0	9.9
NNE	1.1	1.5	.7	.8	.2	.0	.1	.0	.0	4.4
NE	.6	1.2	1.0	.5	.1	.0	.0	.0	.0	3.4
ENE	.5	.7	.8	.4	.0	.0	.0	.0	.0	2.4
E	.5	1.0	1.0	.3	.2	.2	.0	.0	.0	3.0
ESE	.7	1.1	1.1	.9	.2	.0	.0	.0	.0	4.1
SE	.6	1.7	2.5	2.4	.8	.3	.0	.0	.0	8.3
SSE	.6	1.9	2.7	1.4	1.0	.2	.0	.0	.0	7.8
S	.9	2.8	2.3	.8	.7	.1	.0	.0	.0	7.5
SSW	.9	2.4	.8	.1	.0	.0	.0	.0	.0	4.1
SW	.8	1.5	.5	.1	.0	.0	.0	.0	.0	3.0
WSW	.9	2.0	.8	.2	.1	.0	.0	.0	.0	4.1
W	1.1	3.0	2.6	.5	.5	.3	.0	.0	.0	8.0
WNW	.8	2.6	2.9	2.2	1.5	1.3	.1	.0	.0	11.2
NW	1.3	1.5	2.4	1.7	.8	.8	.2	.0	.0	8.6
NNW	1.4	2.4	1.4	1.7	.8	.2	.0	.0	.0	7.9
TOTAL	14.5	30.3	25.9	15.5	7.6	3.6	.3	.0	.0	97.6
CALM =	2.18%									
MISSING DATA =	.17%									

O3 Summary Statistics for 1991
Edmonton East Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .082 PPM												
	Ambient 24-hour average regulation = .025 PPM												
	-----BY SEASON-----												
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Winter	.000	.000	.000	.001	.004	.014	.025	.032	.035	.043	.049	
	Spring	.001	.001	.003	.007	.020	.031	.039	.046	.049	.053	.060	
	Summer	.001	.001	.003	.006	.014	.023	.031	.040	.043	.047	.067	
	Autumn	.000	.000	.001	.001	.006	.013	.020	.025	.027	.034	.038	
	SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Winter	.015	.006	.012	.049	1872	0(0.00%)	11(14.29%)					
	Spring	.029	.023	.014	.059	2129	0(0.00%)	65(73.86%)					
	Summer	.023	.018	.012	.066	2179	0(0.00%)	27(30.00%)					
	Autumn	.013	.008	.009	.038	2147	0(0.00%)	0(0.00%)					
	-----BY MONTH-----												
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Jan	.000	.000	.000	.001	.004	.014	.025	.031	.033	.035	.036	
	Feb	.000	.000	.000	.001	.009	.022	.034	.040	.043	.048	.049	
	Mar	.001	.001	.001	.003	.012	.029	.037	.044	.047	.053	.055	
	Apr	.001	.001	.003	.007	.019	.029	.037	.043	.046	.049	.051	
	May	.002	.004	.009	.015	.025	.035	.042	.048	.051	.055	.060	
	Jun	.001	.001	.003	.006	.014	.023	.031	.040	.042	.045	.058	
	Jul	.001	.001	.003	.007	.015	.024	.033	.041	.045	.047	.053	
	Aug	.001	.001	.002	.005	.012	.021	.029	.039	.043	.049	.067	
	Sep	.001	.001	.001	.002	.006	.013	.021	.026	.028	.031	.038	
	Oct	.000	.000	.001	.002	.007	.014	.020	.023	.026	.034	.036	
	Nov	.000	.000	.001	.001	.004	.013	.020	.025	.028	.033	.035	
	Dec	.000	.000	.001	.001	.003	.011	.022	.026	.029	.034	.039	
	MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Jan	.015	.004	.011	.036	735	0(0.00%)	3(10.00%)					
	Feb	.022	.009	.014	.049	393	0(0.00%)	7(43.75%)					
	Mar	.026	.018	.015	.054	674	0(0.00%)	16(59.26%)					
	Apr	.027	.022	.013	.050	714	0(0.00%)	20(66.67%)					
	May	.033	.030	.012	.058	741	0(0.00%)	29(93.55%)					
	Jun	.023	.018	.012	.057	720	0(0.00%)	9(30.00%)					
	Jul	.024	.019	.012	.052	717	0(0.00%)	9(31.03%)					
	Aug	.021	.016	.013	.066	742	0(0.00%)	9(29.03%)					
	Sep	.014	.010	.009	.037	720	0(0.00%)	0(0.00%)					
	Oct	.014	.008	.008	.036	707	0(0.00%)	0(0.00%)					
	Nov	.013	.007	.009	.035	720	0(0.00%)	0(0.00%)					
	Dec	.013	.006	.010	.039	744	0(0.00%)	1(3.23%)					
	-----BY YEAR-----												
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	1991	.000	.000	.001	.002	.009	.020	.030	.039	.044	.050	.067	
	YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	1991	.020	.012	.013	.067	8327	0(0.00%)	103(30.03%)					

	n/a - not applicable			* - no data									

n/a - not applicable

* - no data

Wind Summary for 1991
Edmonton East Monitoring Station

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** calculation is for exceedances of the 24-hour regulation for O3 **
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Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	15	32	48	29	32	17	5	2	0	180
NNE	14	20	17	11	1	1	2	0	0	67
NE	16	26	26	6	0	0	0	0	0	74
ENE	10	4	6	4	3	2	0	0	0	29
E	18	13	17	13	5	6	1	0	0	73
ESE	16	25	47	35	13	5	0	0	0	141
SE	10	46	71	64	38	9	2	0	0	240
SSE	24	90	92	78	47	20	4	1	0	356
S	17	88	104	78	32	19	7	0	0	345
SSW	11	68	83	32	14	6	2	0	0	216
SW	20	28	40	7	1	0	0	0	0	96
WSW	10	11	14	7	3	0	0	0	0	45
W	9	17	32	11	12	3	0	0	0	84
WNW	13	35	55	34	12	27	2	0	0	178
NW	15	36	33	21	21	15	10	0	0	151
NNW	10	28	22	28	22	15	6	0	0	131
TOTAL	228	567	707	458	256	145	40	5	0	2406
CALM =	6 hours									
MISSING DATA =	60 hours									

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	.6	1.3	1.9	1.2	1.3	.7	.2	.1	.0	7.3
NNE	.6	.8	.7	.4	.0	.0	.0	.1	.0	2.7
NE	.6	1.1	1.1	.2	.0	.0	.0	.0	.0	3.0
ENE	.4	.2	.2	.2	.1	.1	.0	.0	.0	1.2
E	.7	.5	.7	.5	.2	.2	.0	.0	.0	3.0
ESE	.6	1.0	1.9	1.4	.5	.2	.0	.0	.0	5.7
SE	.4	1.9	2.9	2.6	1.5	.4	.1	.0	.0	9.7
SSE	1.0	3.6	3.7	3.2	1.9	.8	.2	.0	.0	14.4
S	.7	3.6	4.2	3.2	1.3	.8	.3	.0	.0	14.0
SSW	.4	2.8	3.4	1.3	.6	.2	.1	.0	.0	8.7
SW	.8	1.1	1.6	.3	.0	.0	.0	.0	.0	3.9
WSW	.4	.4	.6	.3	.1	.0	.0	.0	.0	1.8
W	.4	.7	1.3	.4	.5	.1	.0	.0	.0	3.4
WNW	.5	1.4	2.2	1.4	.5	1.1	.1	.0	.0	7.2
NW	.6	1.5	1.3	.8	.8	.6	.4	.0	.0	6.1
NNW	.4	1.1	.9	1.1	.9	.6	.2	.0	.0	5.3
TOTAL	9.2	22.9	28.6	18.5	10.4	5.9	1.6	.2	.0	97.3
CALM =	.24%									
MISSING DATA =	2.43%									

O3 Summary Statistics for 1991
 Calgary Downtown Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation = .082 PPM											
Ambient 24-hour average regulation = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.002	.007	.017	.024	.027	.033	.041
Spring	.000	.001	.002	.004	.011	.020	.030	.038	.041	.051	.061
Summer	.000	.001	.002	.004	.010	.020	.028	.036	.042	.051	.057
Autumn	.000	.000	.000	.000	.002	.008	.015	.022	.026	.032	.043
SEASON	Arithmetic		Geometric		Arithmetic		Range		N		Number of Exceedances
	Mean	Mean	Std Dev						1 hour	24 hour	
Winter	.010	.003	.009		.041	2151			0(0.00%)	0(0.00%)	
Spring	.021	.015	.013		.061	2197			0(0.00%)	21(22.83%)	
Summer	.020	.015	.012		.057	2098			0(0.00%)	13(14.94%)	
Autumn	.009	.002	.009		.043	2172			0(0.00%)	1(1.10%)	
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.001	.007	.017	.024	.028	.032	.035
Feb	.000	.000	.001	.001	.003	.009	.018	.024	.028	.035	.041
Mar	.000	.000	.001	.002	.006	.014	.022	.029	.032	.038	.040
Apr	.000	.001	.003	.005	.015	.025	.034	.039	.041	.051	.061
May	.000	.001	.004	.007	.013	.023	.034	.040	.047	.053	.061
Jun	.000	.001	.002	.005	.011	.019	.027	.036	.043	.050	.053
Jul	.000	.001	.003	.005	.011	.021	.030	.037	.041	.045	.053
Aug	.000	.001	.002	.003	.009	.018	.028	.036	.041	.051	.057
Sep	.000	.000	.001	.001	.003	.010	.018	.024	.029	.034	.043
Oct	.000	.000	.000	.000	.002	.009	.015	.021	.024	.031	.036
Nov	.000	.000	.000	.000	.001	.004	.011	.019	.023	.030	.038
Dec	.000	.000	.000	.001	.002	.006	.015	.022	.026	.032	.035
MONTH	Arithmetic		Geometric		Arithmetic		Range		N		Number of Exceedances
	Mean	Mean	Std Dev						1 hour	24 hour	
Jan	.010	.002	.009		.035	742			0(0.00%)	0(0.00%)	
Feb	.011	.005	.009		.041	668			0(0.00%)	0(0.00%)	
Mar	.015	.009	.010		.040	741			0(0.00%)	0(0.00%)	
Apr	.024	.019	.012		.061	717			0(0.00%)	10(33.33%)	
May	.024	.019	.013		.061	739			0(0.00%)	11(35.48%)	
Jun	.020	.016	.012		.053	617			0(0.00%)	5(20.00%)	
Jul	.021	.016	.012		.053	741			0(0.00%)	4(12.90%)	
Aug	.019	.014	.012		.057	740			0(0.00%)	4(12.90%)	
Sep	.012	.006	.009		.043	716			0(0.00%)	1(3.33%)	
Oct	.010	.002	.008		.036	739			0(0.00%)	0(0.00%)	
Nov	.007	.001	.008		.038	717			0(0.00%)	0(0.00%)	
Dec	.009	.003	.009		.035	741			0(0.00%)	0(0.00%)	
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.001	.004	.013	.023	.032	.037	.047	.061
YEAR	Arithmetic		Geometric		Arithmetic		Range		N		Number of Exceedances
	Mean	Mean	Std Dev						1 hour	24 hour	
1991	.015	.006	.012		.061	8618			0(0.00%)	35(9.72%)	

n/a - not applicable

* - no data

O3 Summary Statistics for 1991
 Calgary Residential Monitoring Station
 Units are PPM (parts per million)

	Ambient 1-hour average regulation = .082 PPM											
	Ambient 24-hour average regulation = .025 PPM											
	-----BY SEASON-----											
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Winter	.000	.000	.000	.001	.006	.018	.030	.037	.039	.042	.045
	Spring	.000	.000	.004	.009	.021	.033	.045	.052	.056	.063	.068
	Summer	.000	.000	.005	.009	.018	.031	.042	.050	.055	.064	.080
	Autumn	.000	.000	.000	.001	.006	.019	.030	.037	.041	.048	.059
	SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
							1 hour	24 hour				
	Winter	.019	.006	.013	.045	2071	0(0.00%)	22(25.58%)				
	Spring	.032	.022	.016	.068	2200	0(0.00%)	74(80.43%)				
	Summer	.030	.021	.016	.080	2196	0(0.00%)	74(80.43%)				
	Autumn	.019	.007	.013	.059	2155	0(0.00%)	17(19.10%)				
	-----BY MONTH-----											
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Jan	.000	.000	.000	.001	.006	.019	.031	.036	.038	.041	.044
	Feb	.000	.000	.000	.001	.006	.020	.032	.039	.041	.043	.045
	Mar	.000	.000	.001	.004	.016	.027	.037	.045	.049	.054	.058
	Apr	.000	.000	.007	.012	.025	.039	.047	.053	.056	.060	.068
	May	.000	.001	.008	.013	.025	.036	.047	.056	.060	.065	.066
	Jun	.000	.000	.007	.012	.023	.034	.043	.052	.058	.065	.067
	Jul	.000	.000	.006	.009	.019	.032	.043	.050	.054	.063	.080
	Aug	.000	.000	.003	.007	.014	.026	.039	.048	.054	.064	.071
	Sep	.000	.000	.000	.002	.006	.020	.032	.040	.045	.051	.059
	Oct	.000	.000	.001	.003	.014	.023	.031	.038	.042	.046	.050
	Nov	.000	.000	.000	.000	.003	.013	.024	.033	.037	.043	.045
	Dec	.000	.000	.000	.000	.005	.016	.028	.036	.039	.043	.044
	MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
							1 hour	24 hour				
	Jan	.019	.006	.013	.044	742	0(0.00%)	8(25.81%)				
	Feb	.020	.006	.014	.045	670	0(0.00%)	9(32.14%)				
	Mar	.026	.015	.014	.058	741	0(0.00%)	16(51.61%)				
	Apr	.036	.027	.015	.068	718	0(0.00%)	29(96.67%)				
	May	.035	.027	.016	.066	741	0(0.00%)	29(93.55%)				
	Jun	.033	.025	.015	.067	718	0(0.00%)	26(86.67%)				
	Jul	.031	.022	.015	.080	739	0(0.00%)	30(96.77%)				
	Aug	.027	.018	.016	.071	739	0(0.00%)	18(58.06%)				
	Sep	.020	.008	.014	.059	715	0(0.00%)	5(16.67%)				
	Oct	.022	.012	.012	.050	723	0(0.00%)	11(37.93%)				
	Nov	.015	.003	.012	.045	717	0(0.00%)	1(3.33%)				
	Dec	.017	.005	.013	.044	659	0(0.00%)	5(18.52%)				
	-----BY YEAR-----											
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	1991	.000	.000	.000	.003	.012	.025	.037	.046	.052	.061	.080
	YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
							1 hour	24 hour				
	1991	.025	.012	.016	.080	8622	0(0.00%)	187(52.09%)				

n/a - not applicable

* - no data

Wind Summary for 1991
Calgary Residential Monitoring Station

** calculation is for exceedances of the 24-hour regulation for O3 **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	50	55	29	11	4	0	0	0	0	149
NNE	36	21	8	0	0	0	0	0	0	65
NE	57	50	7	0	0	0	0	0	0	114
ENE	55	62	10	0	0	0	0	0	0	127
E	58	94	26	5	0	0	0	0	0	183
ESE	72	150	63	6	0	0	0	0	0	291
SE	86	136	91	21	3	0	0	0	0	337
SSE	42	60	22	11	0	0	0	0	0	135
S	39	43	10	14	3	1	0	0	0	110
SSW	27	22	15	6	3	6	0	0	0	79
SW	45	27	24	18	18	6	3	2	0	143
WSW	58	64	50	62	29	9	2	1	0	275
W	146	390	252	91	34	3	1	0	0	917
WNW	181	555	156	20	7	0	0	0	0	919
NW	74	98	87	57	21	6	6	1	0	350
NNW	43	91	59	48	23	2	1	0	0	267
TOTAL	1069	1918	909	370	145	33	13	4	0	4461
CALM = 23 hours										
MISSING DATA = 4 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	1.1	1.2	.6	.2	.1	.0	.0	.0	.0	3.3
NNE	.8	.5	.2	.0	.0	.0	.0	.0	.0	1.4
NE	1.3	1.1	.2	.0	.0	.0	.0	.0	.0	2.5
ENE	1.2	1.4	.2	.0	.0	.0	.0	.0	.0	2.8
E	1.3	2.1	.6	.1	.0	.0	.0	.0	.0	4.1
ESE	1.6	3.3	1.4	.1	.0	.0	.0	.0	.0	6.5
SE	1.9	3.0	2.0	.5	.1	.0	.0	.0	.0	7.5
SSE	.9	1.3	.5	.2	.0	.0	.0	.0	.0	3.0
S	.9	1.0	.2	.3	.1	.0	.0	.0	.0	2.5
SSW	.6	.5	.3	.1	.1	.1	.0	.0	.0	1.8
SW	1.0	.6	.5	.4	.4	.1	.1	.0	.0	3.2
WSW	1.3	1.4	1.1	1.4	.6	.2	.0	.0	.0	6.1
W	3.3	8.7	5.6	2.0	.8	.1	.0	.0	.0	20.4
WNW	4.0	12.4	3.5	.4	.2	.0	.0	.0	.0	20.5
NW	1.6	2.2	1.9	1.3	.5	.1	.1	.0	.0	7.8
NNW	1.0	2.0	1.3	1.1	.5	.0	.0	.0	.0	5.9
TOTAL	23.8	42.7	20.3	8.2	3.2	.7	.3	.1	.0	99.4
CALM = .51%										
MISSING DATA = .09%										

O3 Summary Statistics for 1991
 Calgary Industrial Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation = .082 PPM											
Ambient 24-hour average regulation = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.001	.007	.021	.030	.034	.037	.041
Spring	.000	.001	.001	.001	.009	.025	.036	.043	.046	.052	.059
Summer	.000	.001	.002	.003	.010	.023	.033	.039	.043	.052	.064
Autumn	.000	.000	.000	.000	.001	.009	.023	.031	.035	.043	.053
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Winter	.011	.002	.012	.041	2141	0(0.00%)	4(4.44%)				
Spring	.024	.015	.015	.059	2201	0(0.00%)	38(41.30%)				
Summer	.022	.015	.014	.064	2184	0(0.00%)	28(30.43%)				
Autumn	.013	.001	.013	.053	2150	0(0.00%)	2(2.22%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.001	.001	.001	.008	.023	.032	.034	.038	.041
Feb	.000	.001	.001	.001	.001	.010	.022	.030	.033	.038	.039
Mar	.000	.001	.001	.001	.003	.019	.030	.038	.041	.049	.052
Apr	.000	.001	.001	.002	.011	.032	.038	.045	.049	.054	.057
May	.000	.001	.002	.005	.014	.026	.038	.044	.047	.052	.059
Jun	.000	.001	.002	.004	.013	.026	.036	.042	.046	.055	.058
Jul	.000	.001	.002	.003	.010	.023	.032	.038	.041	.048	.053
Aug	.000	.000	.001	.002	.007	.019	.031	.039	.043	.052	.064
Sep	.000	.000	.000	.000	.001	.013	.026	.033	.040	.044	.053
Oct	.000	.000	.000	.001	.003	.014	.026	.034	.037	.044	.049
Nov	.000	.000	.000	.000	.000	.002	.012	.024	.028	.034	.039
Dec	.000	.000	.000	.000	.000	.002	.014	.028	.034	.037	.039
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Jan	.013	.006	.012	.041	740	0(0.00%)	1(3.23%)				
Feb	.013	.007	.011	.039	669	0(0.00%)	1(3.57%)				
Mar	.019	.010	.014	.052	742	0(0.00%)	4(12.90%)				
Apr	.027	.017	.016	.057	717	0(0.00%)	15(50.00%)				
May	.026	.019	.014	.059	742	0(0.00%)	19(61.29%)				
Jun	.025	.019	.014	.058	715	0(0.00%)	15(50.00%)				
Jul	.022	.016	.013	.053	741	0(0.00%)	8(25.81%)				
Aug	.020	.011	.014	.064	728	0(0.00%)	5(16.13%)				
Sep	.015	.002	.013	.053	714	0(0.00%)	1(3.33%)				
Oct	.016	.006	.013	.049	723	0(0.00%)	1(3.23%)				
Nov	.007	.000	.010	.039	703	0(0.00%)	0(0.00%)				
Dec	.009	.000	.011	.039	732	0(0.00%)	2(6.45%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.001	.003	.016	.030	.038	.042	.050	.064
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
1991	.018	.005	.014	.064	8676	0(0.00%)	72(19.78%)				

n/a - not applicable * - no data											

n/a - not applicable

* - no data

Wind Summary for 1991
Calgary Industrial Monitoring Station

** calculation is for exceedances of the 24-hour regulation for O3 **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	12	48	52	45	21	7	0	1	0	186
NNE	8	15	27	15	3	0	0	0	0	68
NE	9	10	19	0	0	0	0	0	0	38
ENE	20	15	17	2	0	0	0	0	0	54
E	9	19	8	1	0	0	0	0	0	37
ESE	19	8	7	3	0	0	0	0	0	37
SE	18	14	12	8	0	0	0	0	0	52
SSE	10	23	22	13	0	0	0	0	0	68
S	17	27	12	8	1	0	0	0	0	65
SSW	38	11	3	0	0	0	0	0	0	52
SW	31	12	5	3	5	1	0	0	0	57
WSW	21	9	14	5	4	2	0	0	0	55
W	63	48	24	8	2	1	0	0	0	146
WNW	56	83	74	77	23	5	2	0	0	320
NW	21	84	73	35	10	9	1	0	0	233
NNW	19	65	67	62	20	15	4	6	0	258
TOTAL	371	491	436	285	89	40	7	7	0	1726
CALM = 2 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	.7	2.8	3.0	2.6	1.2	.4	.0	.1	.0	10.8
NNE	.5	.9	1.6	.9	.2	.0	.0	.0	.0	3.9
NE	.5	.6	1.1	.0	.0	.0	.0	.0	.0	2.2
ENE	1.2	.9	1.0	.1	.0	.0	.0	.0	.0	3.1
E	.5	1.1	.5	.1	.0	.0	.0	.0	.0	2.1
ESE	1.1	.5	.4	.2	.0	.0	.0	.0	.0	2.1
SE	1.0	.8	.7	.5	.0	.0	.0	.0	.0	3.0
SSE	.6	1.3	1.3	.8	.0	.0	.0	.0	.0	3.9
S	1.0	1.6	.7	.5	.1	.0	.0	.0	.0	3.8
SSW	2.2	.6	.2	.0	.0	.0	.0	.0	.0	3.0
SW	1.8	.7	.3	.2	.3	.1	.0	.0	.0	3.3
WSW	1.2	.5	.8	.3	.2	.1	.0	.0	.0	3.2
W	3.6	2.8	1.4	.5	.1	.1	.0	.0	.0	8.4
WNW	3.2	4.8	4.3	4.5	1.3	.3	.1	.0	.0	16.5
NW	1.2	4.9	4.2	2.0	.6	.5	.1	.0	.0	13.5
NNW	1.1	3.8	3.9	3.6	1.2	.9	.2	.3	.0	14.9
TOTAL	21.5	28.4	25.2	16.5	5.2	2.3	.4	.4	.0	99.9
CALM = .12%										
MISSING DATA = .00%										

O3 Summary Statistics for 1991
Fort Saskatchewan Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = .082 PPM											
Ambient 24-hour average regulation = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.003	.020	.035	.048	.051	.056	.060
Spring	.000	.000	.005	.012	.026	.039	.050	.058	.063	.069	.083
Summer	.000	.000	.003	.008	.019	.031	.042	.051	.058	.070	.084
Autumn	.000	.000	.000	.001	.008	.018	.027	.035	.039	.047	.054
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Winter	.021	.004	.017	.060	2157	0(0.00%)	30(33.33%)				
Spring	.038	.027	.017	.083	2198	3(0.14%)	85(92.39%)				
Summer	.031	.021	.016	.084	2205	2(0.09%)	72(78.26%)				
Autumn	.018	.006	.012	.054	2182	0(0.00%)	12(13.19%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.004	.026	.045	.051	.052	.055	.060
Feb	.000	.000	.000	.002	.014	.029	.040	.048	.052	.056	.060
Mar	.000	.000	.001	.007	.020	.035	.047	.052	.055	.065	.070
Apr	.000	.001	.007	.014	.027	.039	.050	.057	.060	.065	.069
May	.000	.002	.010	.020	.032	.044	.055	.064	.066	.077	.083
Jun	.000	.001	.005	.012	.021	.031	.042	.050	.054	.062	.065
Jul	.000	.000	.003	.009	.019	.030	.041	.049	.055	.070	.083
Aug	.000	.000	.002	.005	.016	.031	.043	.054	.063	.076	.084
Sep	.000	.000	.000	.001	.011	.022	.033	.040	.042	.049	.054
Oct	.000	.000	.000	.001	.009	.021	.029	.035	.038	.048	.050
Nov	.000	.000	.000	.000	.004	.014	.021	.026	.029	.033	.035
Dec	.000	.000	.000	.000	.001	.007	.021	.028	.031	.036	.038
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
Jan	.025	.004	.020	.060	742	0(0.00%)	15(48.39%)				
Feb	.027	.012	.016	.060	672	0(0.00%)	14(50.00%)				
Mar	.033	.018	.017	.070	739	0(0.00%)	24(77.42%)				
Apr	.037	.031	.016	.069	718	0(0.00%)	30(100.00%)				
May	.043	.035	.017	.083	741	3(0.40%)	31(100.00%)				
Jun	.031	.024	.015	.065	717	0(0.00%)	26(86.67%)				
Jul	.030	.020	.016	.083	744	1(0.13%)	23(74.19%)				
Aug	.031	.019	.019	.084	744	1(0.13%)	23(74.19%)				
Sep	.022	.008	.014	.054	720	0(0.00%)	7(23.33%)				
Oct	.020	.007	.012	.050	742	0(0.00%)	5(16.13%)				
Nov	.013	.004	.009	.035	720	0(0.00%)	0(0.00%)				
Dec	.011	.001	.011	.038	743	0(0.00%)	1(3.23%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.002	.013	.026	.040	.051	.056	.066	.084
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour	24 hour				
1991	.027	.011	.018	.084	8742	5(0.06%)	199(54.52%)				

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

Wind Summary for 1991
Fort Saskatchewan Monitoring Station

** calculation is for exceedances of the 1-hour regulation for O3 **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	0	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	1	2	0	0	0	0	0	0	3	
S	0	0	0	0	0	0	0	0	0	0	
SSW	0	0	0	0	0	0	0	0	0	0	
SW	0	0	1	0	0	0	0	0	0	1	
WSW	0	0	0	0	0	0	0	0	0	0	
W	0	1	0	0	0	0	0	0	0	1	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	0	0	0	
TOTAL	0	2	3	0	0	0	0	0	0	5	
CALM = 0 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	20.0	40.0	.0	.0	.0	.0	.0	.0	60.0	
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	.0	.0	20.0	.0	.0	.0	.0	.0	.0	20.0	
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
W	.0	20.0	.0	.0	.0	.0	.0	.0	.0	20.0	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
TOTAL	.0	40.0	60.0	.0	.0	.0	.0	.0	.0	100.0	
CALM = .00%											
MISSING DATA = .00%											

Wind Summary for 1991
Fort Saskatchewan Monitoring Station

** calculation is for exceedances of the 24-hour regulation for O3 **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	119	79	24	14	4	0	0	0	0	240	
NNE	155	50	4	2	0	0	0	0	0	211	
NE	72	40	11	4	0	0	0	0	0	127	
ENE	45	32	15	11	5	1	0	0	0	109	
E	64	76	17	8	3	0	0	0	0	168	
ESE	43	102	64	25	8	0	0	0	0	242	
SE	57	87	84	65	25	11	1	0	0	330	
SSE	63	84	50	25	14	4	4	0	0	244	
S	120	157	46	20	8	6	0	0	0	357	
SSW	136	113	60	19	8	2	2	0	0	340	
SW	134	122	74	15	5	1	0	0	0	351	
WSW	69	89	79	33	19	1	0	0	0	290	
W	52	75	121	52	25	16	4	8	4	357	
WNW	63	79	101	98	48	36	38	11	2	476	
NW	60	64	78	99	66	48	23	13	10	461	
NNW	58	67	66	83	48	21	6	2	1	352	
TOTAL	1310	1316	894	573	286	147	78	34	17	4655	
CALM = 21 hours											
MISSING DATA = 100 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL
N	2.5	1.7	.5	.3	.1	.0	.0	.0	.0	5.0
NNE	3.2	1.0	.1	.0	.0	.0	.0	.0	.0	4.4
NE	1.5	.8	.2	.1	.0	.0	.0	.0	.0	2.7
ENE	.9	.7	.3	.2	.1	.0	.0	.0	.0	2.3
E	1.3	1.6	.4	.2	.1	.0	.0	.0	.0	3.5
ESE	.9	2.1	1.3	.5	.2	.0	.0	.0	.0	5.1
SE	1.2	1.8	1.8	1.4	.5	.2	.0	.0	.0	6.9
SSE	1.3	1.8	1.0	.5	.3	.1	.1	.0	.0	5.1
S	2.5	3.3	1.0	.4	.2	.1	.0	.0	.0	7.5
SSW	2.8	2.4	1.3	.4	.2	.0	.0	.0	.0	7.1
SW	2.8	2.6	1.5	.3	.1	.0	.0	.0	.0	7.3
WSW	1.4	1.9	1.7	.7	.4	.0	.0	.0	.0	6.1
W	1.1	1.6	2.5	1.1	.5	.3	.1	.2	.1	7.5
WNW	1.3	1.7	2.1	2.1	1.0	.8	.8	.2	.0	10.0
NW	1.3	1.3	1.6	2.1	1.4	1.0	.5	.3	.2	9.7
NNW	1.2	1.4	1.4	1.7	1.0	.4	.1	.0	.0	7.4
TOTAL	27.4	27.6	18.7	12.0	6.0	3.1	1.6	.7	.4	97.5
CALM =	.44%									
MISSING DATA =	2.09%									

O3 Summary Statistics for 1991
Fort McMurray Monitoring Station
Units are PPM (parts per million)

-----BY SEASON-----											
Ambient 1-hour average regulation = .082 PPM											
Ambient 24-hour average regulation = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.003	.007	.018	.030	.039	.043	.047	.054
Spring	.001	.002	.005	.010	.018	.031	.040	.046	.049	.054	.065
Summer	.000	.002	.003	.005	.011	.020	.030	.041	.047	.056	.064
Autumn	.000	.001	.002	.004	.010	.018	.026	.032	.035	.041	.043
-----BY SEASON-----											
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour		24 hour			
Winter	.019	.010	.013	.054	2120	0(0.00%)		23(26.14%)			
Spring	.029	.024	.014	.064	2199	0(0.00%)		64(69.57%)			
Summer	.022	.017	.013	.064	2206	0(0.00%)		24(26.09%)			
Autumn	.018	.014	.010	.043	2181	0(0.00%)		13(14.29%)			
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.001	.002	.006	.016	.032	.042	.044	.046	.047
Feb	.000	.000	.002	.004	.013	.026	.033	.038	.041	.052	.054
Mar	.001	.001	.003	.005	.013	.025	.036	.042	.044	.046	.048
Apr	.003	.005	.009	.013	.022	.034	.041	.045	.047	.050	.052
May	.001	.001	.008	.011	.019	.032	.043	.050	.053	.060	.065
Jun	.001	.003	.006	.008	.014	.024	.036	.048	.053	.058	.064
Jul	.000	.001	.003	.005	.011	.021	.030	.037	.041	.047	.063
Aug	.001	.001	.003	.004	.008	.016	.026	.035	.042	.050	.054
Sep	.000	.001	.002	.004	.008	.015	.023	.029	.032	.037	.040
Oct	.001	.001	.002	.005	.011	.019	.028	.034	.037	.042	.043
Nov	.000	.001	.002	.004	.010	.020	.028	.033	.034	.038	.041
Dec	.000	.000	.000	.003	.005	.013	.024	.032	.039	.043	.045
-----BY MONTH-----											
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour		24 hour			
Jan	.019	.009	.015	.047	738	0(0.00%)		8(25.81%)			
Feb	.024	.015	.013	.054	670	0(0.00%)		12(42.86%)			
Mar	.024	.019	.013	.047	740	0(0.00%)		13(41.94%)			
Apr	.032	.028	.012	.049	720	0(0.00%)		28(93.33%)			
May	.031	.026	.015	.064	739	0(0.00%)		23(74.19%)			
Jun	.026	.021	.015	.063	720	0(0.00%)		14(46.67%)			
Jul	.021	.016	.012	.063	742	0(0.00%)		6(19.35%)			
Aug	.018	.014	.012	.053	744	0(0.00%)		4(12.90%)			
Sep	.016	.012	.010	.040	719	0(0.00%)		1(3.33%)			
Oct	.020	.016	.011	.042	742	0(0.00%)		8(25.81%)			
Nov	.019	.014	.010	.041	720	0(0.00%)		4(13.33%)			
Dec	.015	.007	.011	.045	712	0(0.00%)		3(10.34%)			
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.001	.002	.005	.011	.021	.032	.041	.045	.053	.065
-----BY YEAR-----											
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev			1 hour		24 hour			
1991	.022	.015	.013	.065	8706	0(0.00%)		124(34.16%)			
-----BY YEAR-----											
n/a - not applicable				* - no data							

Wind Summary for 1991
Fort McMurray Monitoring Station

** calculation is for exceedances of the 24-hour regulation for O3 **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	70	75	93	59	9	5	1	0	0	312	
NNE	91	122	138	108	35	9	3	0	0	506	
NE	31	15	25	2	1	0	0	0	0	74	
ENE	15	8	1	0	0	0	0	0	0	24	
E	37	3	1	0	1	0	0	0	0	42	
ESE	48	16	1	0	0	0	0	0	0	65	
SE	62	56	25	3	0	0	0	0	0	146	
SSE	147	127	46	5	0	0	0	0	0	325	
S	118	65	18	2	0	0	0	0	0	203	
SSW	28	16	4	0	0	0	0	0	0	48	
SW	24	7	0	0	0	0	0	0	0	31	
WSW	33	34	19	4	0	0	0	0	0	90	
W	59	52	64	48	11	0	0	0	0	234	
WNW	48	23	33	43	21	14	4	3	0	189	
NW	33	17	21	27	14	8	10	1	0	131	
NNW	41	16	33	18	8	6	1	4	1	128	
TOTAL	885	652	522	319	100	42	19	8	1	2548	
CALM = 258 hours											
MISSING DATA = 170 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	2.4	2.5	3.1	2.0	.3	.2	.0	.0	.0	10.5	
NNE	3.1	4.1	4.6	3.6	1.2	.3	.1	.0	.0	17.0	
NE	1.0	.5	.8	.1	.0	.0	.0	.0	.0	2.5	
ENE	.5	.3	.0	.0	.0	.0	.0	.0	.0	.8	
E	1.2	.1	.0	.0	.0	.0	.0	.0	.0	1.4	
ESE	1.6	.5	.0	.0	.0	.0	.0	.0	.0	2.2	
SE	2.1	1.9	.8	.1	.0	.0	.0	.0	.0	4.9	
SSE	4.9	4.3	1.5	.2	.0	.0	.0	.0	.0	10.9	
S	4.0	2.2	.6	.1	.0	.0	.0	.0	.0	6.8	
SSW	.9	.5	.1	.0	.0	.0	.0	.0	.0	1.6	
SW	.8	.2	.0	.0	.0	.0	.0	.0	.0	1.0	
WSW	1.1	1.1	.6	.1	.0	.0	.0	.0	.0	3.0	
W	2.0	1.7	2.2	1.6	.4	.0	.0	.0	.0	7.9	
WNW	1.6	.8	1.1	1.4	.7	.5	.1	.1	.0	6.4	
NW	1.1	.6	.7	.9	.5	.3	.3	.0	.0	4.4	
NNW	1.4	.5	1.1	.6	.3	.2	.0	.1	.0	4.3	
TOTAL	29.7	21.9	17.5	10.7	3.4	1.4	.6	.3	.0	85.6	
CALM = 8.67%											
MISSING DATA = 5.71%											

Annual Average Concentration									
Year: 1991									
Pollutant: O3 [ppm]									
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	
1976	0.024	0.027	0.022	0.012	0.027	0.019	*	*	
1977	0.014	0.015	0.015	0.011	0.021	0.013	*	*	
1978	0.009	0.017	0.017	0.014	0.022	0.012	*	*	
1979	0.012	0.019	0.023	0.013	0.024	0.018	*	**	
1980	0.012	0.015	0.020	0.012	0.020	0.014	*	**	
1981	0.012	0.018	0.021	0.010	0.020	0.012	b	**	
1982	0.014	0.021	0.024	0.012	0.022	0.016	0.027	**	
1983	0.012	0.018	0.022	0.012	0.021	0.015	0.022	**	
1984	0.015	0.017	0.020	0.013	0.023	0.015	0.027	0.021	
1985	0.015	0.015	0.025	0.013	0.023	0.017	0.024	0.020	
1986	0.016	0.018	0.022	0.012	0.022	0.017	0.021	0.020	
1987	0.021	0.019	0.022	0.014	0.023	0.017	0.024	0.022	
1988	0.016	0.018	0.022	0.016	0.023	0.017	0.025	0.022	
1989	0.015	0.016	0.020	0.015	0.024	0.016	0.021	0.023	
1990	0.014	0.018	0.021	0.014	0.023	0.018	0.025	0.025	
1991	0.017	0.020	0.020	0.015	0.025	0.018	0.027	0.022	

a ≥ 50% to < 75% of data available

b less than 50% of data available

* no data available

** concentration between 0.015 and 0.025 ppm

SO2 Summary Statistics for 1991
Edmonton East Monitoring Station
Units are PPM (parts per million)

Ambient 1-hour average regulation = .170 PPM											
Ambient 24-hour average regulation = .060 PPM											
Ambient annual average regulation = .010 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.001	.003	.004	.006	.007	.011	.019
Spring	.000	.000	.000	.001	.002	.003	.004	.006	.008	.013	.022
Summer	.000	.000	.000	.000	.001	.002	.004	.006	.008	.016	.039
Autumn	.000	.000	.000	.000	.001	.002	.004	.006	.007	.012	.057

SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour		
Winter	.003	.001	.002	.019	2130	0(0.00%)		0(0.00%)			
Spring	.003	.002	.003	.022	2131	0(0.00%)		0(0.00%)			
Summer	.003	.001	.003	.039	2196	0(0.00%)		0(0.00%)			
Autumn	.003	.001	.003	.057	2138	0(0.00%)		0(0.00%)			
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.002	.004	.005	.007	.009	.012	.019
Feb	.000	.000	.000	.000	.001	.002	.003	.005	.007	.009	.015
Mar	.000	.000	.000	.000	.001	.002	.004	.006	.008	.012	.021
Apr	.000	.000	.000	.001	.002	.002	.004	.006	.007	.011	.021
May	.000	.001	.002	.002	.003	.004	.005	.006	.007	.014	.022
Jun	.001	.001	.002	.002	.003	.004	.005	.007	.010	.019	.039
Jul	.000	.000	.000	.000	.001	.002	.003	.005	.006	.013	.025
Aug	.000	.000	.000	.000	.001	.002	.003	.004	.006	.011	.031
Sep	.000	.000	.000	.000	.000	.002	.003	.005	.006	.012	.020
Oct	.000	.000	.000	.000	.001	.002	.004	.005	.008	.014	.057
Nov	.000	.000	.000	.001	.002	.003	.004	.006	.007	.009	.014
Dec	.000	.000	.000	.001	.002	.002	.004	.005	.006	.008	.014

MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour		
Jan	.004	.002	.003	.019	744	0(0.00%)		0(0.00%)			
Feb	.002	.001	.002	.015	668	0(0.00%)		0(0.00%)			
Mar	.003	.001	.003	.021	676	0(0.00%)		0(0.00%)			
Apr	.003	.002	.002	.021	713	0(0.00%)		0(0.00%)			
May	.004	.004	.002	.022	742	0(0.00%)		0(0.00%)			
Jun	.005	.004	.003	.038	719	0(0.00%)		0(0.00%)			
Jul	.002	.001	.003	.025	742	0(0.00%)		0(0.00%)			
Aug	.002	.001	.003	.031	735	0(0.00%)		0(0.00%)			
Sep	.002	.000	.003	.020	720	0(0.00%)		0(0.00%)			
Oct	.003	.001	.004	.057	731	0(0.00%)		0(0.00%)			
Nov	.003	.002	.002	.014	687	0(0.00%)		0(0.00%)			
Dec	.003	.002	.002	.014	718	0(0.00%)		0(0.00%)			
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.000	.001	.003	.004	.006	.008	.013	.057

YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour		
1991	.003	.001	.003	.057	8595	0(0.00%)		0(0.00%)			

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

SO2 Summary Statistics for 1991
 Calgary Industrial Monitoring Station
 Units are PPM (parts per million)

	Ambient 1-hour average regulation = .170 PPM											
	Ambient 24-hour average regulation = .060 PPM											
	Ambient annual average regulation = .010 PPM											
	-----BY SEASON-----											
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Winter	.000	.000	.000	.001	.002	.003	.005	.008	.009	.015	.037
	Spring	.000	.000	.000	.000	.001	.002	.003	.005	.006	.010	.046
	Summer	.000	.000	.000	.000	.001	.002	.003	.005	.006	.010	.045
	Autumn	.000	.000	.000	.000	.001	.003	.004	.006	.008	.012	.045
	SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	Winter	.004	.002	.003	.037	2091	0(0.00%)	0(0.00%)				
	Spring	.002	.001	.003	.046	2197	0(0.00%)	0(0.00%)				
	Summer	.003	.001	.002	.045	2190	0(0.00%)	0(0.00%)				
	Autumn	.003	.001	.003	.045	2094	0(0.00%)	0(0.00%)				
	-----BY MONTH-----											
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	Jan	.000	.000	.000	.001	.002	.003	.006	.009	.011	.017	.037
	Feb	.000	.000	.000	.000	.001	.002	.004	.006	.008	.012	.034
	Mar	.000	.000	.000	.000	.001	.002	.004	.006	.008	.015	.046
	Apr	.000	.000	.000	.000	.001	.002	.002	.004	.005	.008	.010
	May	.000	.000	.000	.000	.001	.001	.002	.003	.005	.008	.023
	Jun	.000	.000	.000	.000	.000	.001	.002	.004	.006	.009	.045
	Jul	.000	.000	.000	.001	.001	.002	.003	.004	.006	.008	.013
	Aug	.000	.000	.001	.001	.002	.003	.005	.006	.007	.010	.023
	Sep	.000	.000	.000	.000	.001	.002	.004	.005	.006	.009	.017
	Oct	.000	.000	.000	.000	.001	.002	.004	.006	.007	.009	.045
	Nov	.000	.000	.001	.001	.002	.004	.006	.008	.009	.014	.033
	Dec	.000	.001	.001	.002	.002	.004	.005	.007	.009	.012	.017
	MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	Jan	.004	.002	.004	.037	738	0(0.00%)	0(0.00%)				
	Feb	.003	.001	.003	.034	669	0(0.00%)	0(0.00%)				
	Mar	.003	.001	.004	.046	740	0(0.00%)	0(0.00%)				
	Apr	.002	.001	.002	.010	717	0(0.00%)	0(0.00%)				
	May	.002	.001	.002	.023	740	0(0.00%)	0(0.00%)				
	Jun	.002	.000	.003	.045	713	0(0.00%)	0(0.00%)				
	Jul	.002	.001	.002	.013	740	0(0.00%)	0(0.00%)				
	Aug	.004	.003	.002	.023	737	0(0.00%)	0(0.00%)				
	Sep	.002	.001	.002	.017	690	0(0.00%)	0(0.00%)				
	Oct	.003	.001	.003	.045	733	0(0.00%)	0(0.00%)				
	Nov	.004	.003	.003	.033	671	0(0.00%)	0(0.00%)				
	Dec	.004	.003	.002	.017	684	0(0.00%)	0(0.00%)				
	-----BY YEAR-----											
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
	1991	.000	.000	.000	.000	.001	.002	.004	.006	.008	.012	.046
	YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
		Mean	Mean	Std Dev			1 hour	24 hour				
	1991	.003	.001	.003	.046	8572	0(0.00%)	0(0.00%)				

SO2 Summary Statistics for 1991
 Fort Saskatchewan Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation =	.170	PPM										
Ambient 24-hour average regulation =	.060	PPM										
Ambient annual average regulation =	.010	PPM										
-----BY SEASON-----												
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
Winter	.000	.000	.000	.000	.001	.002	.004	.005	.007	.016	.052	
Spring	.000	.000	.000	.000	.000	.001	.002	.003	.005	.010	.018	
Summer	.000	.000	.000	.000	.000	.001	.001	.002	.003	.006	.017	
Autumn	.000	.000	.000	.000	.000	.001	.003	.004	.006	.011	.020	
-----BY SEASON-----												
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances						
						1 hour	24 hour					
Winter	.003	.001	.003	.052	2152	0(0.00%)	0(0.00%)					
Spring	.001	.000	.002	.018	2192	0(0.00%)	0(0.00%)					
Summer	.001	.000	.001	.017	2179	0(0.00%)	0(0.00%)					
Autumn	.002	.000	.002	.020	2175	0(0.00%)	0(0.00%)					
-----BY MONTH-----												
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
Jan	.000	.000	.000	.000	.001	.002	.004	.005	.008	.012	.020	
Feb	.000	.000	.000	.000	.001	.002	.003	.005	.005	.022	.052	
Mar	.000	.000	.000	.000	.001	.002	.003	.005	.006	.010	.017	
Apr	.000	.000	.000	.000	.000	.001	.002	.003	.005	.010	.018	
May	.000	.000	.000	.000	.000	.001	.001	.002	.003	.006	.018	
Jun	.000	.000	.000	.000	.001	.001	.001	.002	.003	.005	.010	
Jul	.000	.000	.000	.000	.000	.001	.001	.002	.003	.008	.017	
Aug	.000	.000	.000	.000	.000	.001	.002	.003	.004	.007	.014	
Sep	.000	.000	.000	.000	.000	.001	.002	.004	.005	.010	.016	
Oct	.000	.000	.000	.000	.000	.001	.003	.004	.006	.011	.020	
Nov	.000	.000	.000	.000	.001	.002	.003	.005	.006	.010	.020	
Dec	.000	.000	.000	.000	.001	.003	.004	.006	.008	.016	.025	
-----BY MONTH-----												
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances						
						1 hour	24 hour					
Jan	.003	.001	.003	.020	740	0(0.00%)	0(0.00%)					
Feb	.003	.001	.004	.052	672	0(0.00%)	0(0.00%)					
Mar	.002	.001	.002	.017	739	0(0.00%)	0(0.00%)					
Apr	.001	.000	.002	.018	716	0(0.00%)	0(0.00%)					
May	.001	.000	.001	.018	737	0(0.00%)	0(0.00%)					
Jun	.001	.000	.001	.010	716	0(0.00%)	0(0.00%)					
Jul	.001	.000	.002	.017	719	0(0.00%)	0(0.00%)					
Aug	.001	.000	.001	.014	744	0(0.00%)	0(0.00%)					
Sep	.002	.000	.002	.016	717	0(0.00%)	0(0.00%)					
Oct	.002	.000	.002	.020	740	0(0.00%)	0(0.00%)					
Nov	.002	.001	.002	.020	718	0(0.00%)	0(0.00%)					
Dec	.003	.001	.003	.025	740	0(0.00%)	0(0.00%)					
-----BY YEAR-----												
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
1991	.000	.000	.000	.000	.000	.001	.002	.004	.006	.011	.052	
-----BY YEAR-----												
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances						
						1 hour	24 hour					
1991	.002	.000	.002	.052	8698	0(0.00%)	0(0.00%)					

n/a - not applicable

* - no data

SO2 Summary Statistics for 1991
Fort McMurray Monitoring Station
Units are PPM (parts per million)

	Ambient 1-hour average regulation = .170 PPM												
	Ambient 24-hour average regulation = .060 PPM												
	Ambient annual average regulation = .010 PPM												
	-----BY SEASON-----												
	SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Winter	.000	.000	.000	.000	.002	.002	.005	.013	.025	.055	.142	
	Spring	.000	.000	.000	.000	.000	.001	.002	.005	.011	.031	.121	
	Summer	.000	.000	.000	.000	.000	.000	.001	.003	.007	.018	.029	
	Autumn	.000	.000	.000	.000	.000	.001	.002	.005	.010	.026	.056	
	SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Winter	.006	.002	.011	.142	2127	0(0.00%)	0(0.00%)					
	Spring	.003	.000	.006	.121	2202	0(0.00%)	0(0.00%)					
	Summer	.001	.000	.003	.029	2144	0(0.00%)	0(0.00%)					
	Autumn	.002	.000	.005	.056	2177	0(0.00%)	0(0.00%)					
	-----BY MONTH-----												
	MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	Jan	.000	.000	.001	.001	.002	.003	.005	.011	.020	.037	.075	
	Feb	.000	.000	.001	.001	.002	.003	.009	.025	.040	.079	.142	
	Mar	.000	.000	.000	.000	.001	.001	.003	.005	.007	.026	.060	
	Apr	.000	.000	.000	.000	.000	.001	.002	.009	.019	.034	.121	
	May	.000	.000	.000	.000	.000	.001	.001	.002	.006	.019	.041	
	Jun	.000	.000	.000	.000	.000	.001	.001	.002	.006	.015	.026	
	Jul	.000	.000	.000	.000	.000	.000	.000	.002	.005	.015	.025	
	Aug	.000	.000	.000	.000	.000	.000	.001	.005	.011	.020	.029	
	Sep	.000	.000	.000	.000	.000	.000	.001	.003	.009	.024	.038	
	Oct	.000	.000	.000	.000	.001	.001	.002	.003	.006	.020	.056	
	Nov	.000	.001	.001	.001	.001	.002	.003	.008	.014	.027	.042	
	Dec	.000	.000	.000	.000	.000	.002	.003	.009	.012	.030	.081	
	MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	Jan	.005	.002	.008	.075	743	0(0.00%)	0(0.00%)					
	Feb	.009	.003	.016	.142	672	0(0.00%)	0(0.00%)					
	Mar	.003	.001	.005	.060	744	0(0.00%)	0(0.00%)					
	Apr	.003	.000	.009	.121	720	0(0.00%)	0(0.00%)					
	May	.002	.000	.004	.041	738	0(0.00%)	0(0.00%)					
	Jun	.001	.000	.003	.026	720	0(0.00%)	0(0.00%)					
	Jul	.001	.000	.003	.025	682	0(0.00%)	0(0.00%)					
	Aug	.002	.000	.004	.029	742	0(0.00%)	0(0.00%)					
	Sep	.002	.000	.004	.038	718	0(0.00%)	0(0.00%)					
	Oct	.002	.001	.004	.056	739	0(0.00%)	0(0.00%)					
	Nov	.004	.002	.005	.042	720	0(0.00%)	0(0.00%)					
	Dec	.003	.000	.006	.081	712	0(0.00%)	0(0.00%)					
	-----BY YEAR-----												
	YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX	
	1991	.000	.000	.000	.000	.000	.001	.002	.007	.013	.033	.142	
	YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances						
		Mean	Mean	Std Dev			1 hour	24 hour					
	1991	.003	.000	.007	.142	8650	0(0.00%)	0(0.00%)					

n/a - not applicable

* - no data

SO2 Summary Statistics for 1991
 Fort MacKay Monitoring Station
 Units are PPM (parts per million)

Ambient 1-hour average regulation =	.170 PPM										
Ambient 24-hour average regulation =	.060 PPM										
Ambient annual average regulation =	.010 PPM										
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.001	.001	.003	.006	.012	.041	.148
Spring	.000	.000	.000	.000	.000	.001	.003	.008	.017	.066	.254
Summer	.000	.000	.000	.000	.000	.000	.002	.004	.010	.030	.120
Autumn	.000	.000	.000	.000	.000	.001	.001	.004	.010	.034	.174
-----BY SEASON-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour		
Winter	.003	.001	.009	.148	2158	0(0.00%)		0(0.00%)			
Spring	.004	.000	.014	.254	2202	1(0.05%)		0(0.00%)			
Summer	.002	.000	.007	.120	1907	0(0.00%)		0(0.00%)			
Autumn	.002	.000	.008	.174	2151	1(0.05%)		0(0.00%)			
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.001	.002	.004	.008	.017	.041	.148
Feb	.000	.000	.000	.000	.000	.001	.003	.007	.015	.065	.089
Mar	.000	.000	.000	.000	.000	.001	.003	.006	.014	.059	.254
Apr	.000	.000	.000	.000	.000	.000	.001	.004	.012	.068	.148
May	.000	.000	.000	.000	.000	.001	.003	.013	.019	.055	.149
Jun	.000	.000	.000	.000	.000	.001	.002	.007	.015	.034	.106
Jul	.000	.000	.000	.000	.000	.000	.001	.004	.009	.025	.062
Aug	.000	.000	.000	.000	.000	.000	.001	.003	.003	.024	.120
Sep	.000	.000	.000	.000	.000	.000	.001	.003	.009	.025	.054
Oct	.000	.000	.000	.000	.000	.000	.001	.003	.010	.050	.174
Nov	.000	.000	.000	.000	.000	.001	.002	.005	.010	.028	.056
Dec	.000	.000	.000	.000	.001	.001	.002	.004	.005	.012	.025
-----BY MONTH-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour		
Jan	.004	.001	.011	.148	742	0(0.00%)		0(0.00%)			
Feb	.004	.000	.010	.089	672	0(0.00%)		0(0.00%)			
Mar	.005	.000	.016	.254	744	1(0.13%)		0(0.00%)			
Apr	.003	.000	.013	.148	720	0(0.00%)		0(0.00%)			
May	.005	.000	.014	.149	738	0(0.00%)		0(0.00%)			
Jun	.003	.000	.008	.106	712	0(0.00%)		0(0.00%)			
Jul	.002	.000	.005	.062	678	0(0.00%)		0(0.00%)			
Aug	.002	.000	.007	.120	517	0(0.00%)		0(0.00%)			
Sep	.002	.000	.005	.054	697	0(0.00%)		0(0.00%)			
Oct	.003	.000	.012	.174	734	1(0.14%)		0(0.00%)			
Nov	.002	.000	.005	.056	720	0(0.00%)		0(0.00%)			
Dec	.002	.001	.002	.025	744	0(0.00%)		0(0.00%)			
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.000	.000	.000	.000	.000	.001	.002	.006	.012	.045	.254
-----BY YEAR-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances		1 hour	24 hour		
1991	.003	.000	.010	.254	8418	2(0.02%)		0(0.00%)			

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

Wind Summary for 1991
Fort MacKay Monitoring Station

** calculation is for exceedances of the 1-hour regulation for SO2 **

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	0	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	0	0	
S	1	1	0	0	0	0	0	0	0	0	2
SSW	0	0	0	0	0	0	0	0	0	0	
SW	0	0	0	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	0	0	0	
TOTAL	1	1	0	0	0	0	0	0	0	0	2
CALM = 0 hours											
MISSING DATA = 0 hours											

Joint Wind Direction and Speed Frequency Distribution (percent)											
Wind Speed (km/h)											
Dir	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	>40	TOTAL	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
S	50.0	50.0	.0	.0	.0	.0	.0	.0	.0	100.0	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
TOTAL	50.0	50.0	.0	.0	.0	.0	.0	.0	.0	100.0	
CALM = .00%											
MISSING DATA = .00%											

Annual Average Concentration									
Year: 1991									
Pollutant: SO2 [ppm]									

Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort	Fort	Fort
							Sask.	McMurray	Mackay

1976	0.00	0.00	0.00	0.00	0.00	0.00	*	*	*
1977	0.00	0.00	0.00	0.00	0.00	0.00	*	*	*
1978	0.00	0.00	0.00	0.00	0.00	0.00	*	*	*
1979	0.00	0.00	0.00	0.00	0.00	0.00	*	0.00	*
1980	0.00	0.00	0.00	0.00	0.00	0.00	*	0.00	*
1981	b	b	0.00	*	*	0.00	b	0.00	*
1982	*	*	0.00	*	*	0.00	0.00	0.00	*
1983	*	*	0.00	*	*	0.00	0.00	0.00	b
1984	*	*	0.00	*	*	0.00	0.00	0.00	0.00
1985	*	*	0.00	*	*	0.00	0.00	0.00	0.00
1986	*	*	0.00	*	*	0.00	0.00	0.00	0.00
1987	*	*	0.002	*	*	0.004	0.002	0.003	0.004
1988	*	*	0.003	*	*	0.005	0.002	0.002	0.003
1989	*	*	0.003	*	*	0.003	0.002a	0.004	0.003
1990	*	*	0.003	*	*	0.003	0.002	0.003	0.003
1991	*	*	0.003	*	*	0.003	0.002	0.003	0.003

a ≥ 50% to < 75% of data available

b less than 50% of data available

* no data available

THC Summary Statistics for 1991
Edmonton Central Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.2	1.3	1.4	1.5	1.6	1.9	2.2	2.5	2.8	3.7	5.9
Spring	1.1	1.3	1.6	1.7	1.8	2.0	2.2	2.4	2.6	3.1	3.4
Summer	1.2	1.3	1.3	1.4	1.4	1.6	1.7	1.8	2.0	2.3	2.9
Autumn	1.0	1.3	1.4	1.4	1.5	1.6	1.8	2.0	2.2	2.6	5.0
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	1.99	1.94	.49	4.7	2159	n/a					
Spring	2.02	1.99	.34	2.3	2088	n/a					
Summer	1.61	1.60	.21	1.7	2182	n/a					
Autumn	1.68	1.66	.28	4.0	2182	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.2	1.3	1.4	1.4	1.5	1.7	1.9	2.3	2.5	2.8	4.5
Feb	1.3	1.7	1.9	2.0	2.1	2.2	2.3	2.6	2.8	3.0	3.4
Mar	1.7	1.8	1.9	1.9	2.0	2.1	2.4	2.7	2.9	3.3	3.4
Apr	1.1	1.1	1.4	1.5	1.7	2.1	2.2	2.4	2.6	2.9	3.1
May	1.5	1.5	1.6	1.6	1.7	1.8	1.8	2.0	2.1	2.3	3.0
Jun	1.5	1.6	1.6	1.6	1.7	1.7	1.8	2.0	2.1	2.5	2.9
Jul	1.2	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.1
Aug	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.8	2.3	2.5
Sep	1.3	1.4	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.3	3.2
Oct	1.0	1.1	1.3	1.4	1.5	1.6	1.8	1.9	2.0	2.3	2.8
Nov	1.3	1.3	1.5	1.5	1.6	1.7	1.9	2.2	2.4	3.1	5.0
Dec	1.2	1.4	1.5	1.5	1.6	1.8	2.1	2.8	3.1	4.4	5.9
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	1.80	1.76	.36	3.3	744	n/a					
Feb	2.22	2.21	.27	2.1	671	n/a					
Mar	2.24	2.22	.32	1.7	743	n/a					
Apr	2.01	1.98	.36	2.0	601	n/a					
May	1.80	1.79	.16	1.5	744	n/a					
Jun	1.78	1.77	.19	1.4	702	n/a					
Jul	1.53	1.52	.16	.9	736	n/a					
Aug	1.53	1.52	.18	1.2	744	n/a					
Sep	1.60	1.59	.19	1.9	720	n/a					
Oct	1.63	1.62	.22	1.8	744	n/a					
Nov	1.81	1.78	.36	3.7	718	n/a					
Dec	1.98	1.90	.63	4.7	744	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	1.0	1.3	1.4	1.4	1.6	1.7	2.0	2.3	2.5	3.1	5.9
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	1.82	1.79	.39	4.9	8611	n/a					

n/a - not applicable

* - no data

THC Summary Statistics for 1991
Edmonton Northwest Monitoring Station
Units are PPM (parts per million)

No regulations											

BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.7	1.5	1.7	1.9	2.0	2.3	2.7	3.2	3.6	5.4	7.0
Spring	.9	1.6	1.8	1.9	1.9	2.1	2.3	2.6	2.9	3.6	4.7
Summer	1.2	1.2	1.7	1.8	1.9	2.0	2.1	2.3	2.5	2.9	3.6
Autumn	1.7	1.8	1.8	1.9	2.0	2.1	2.4	2.8	3.0	3.8	5.9
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	2.44	2.37	.68	6.3	2160	n/a					
Spring	2.17	2.14	.39	3.8	2179	n/a					
Summer	2.00	1.99	.28	2.4	2047	n/a					
Autumn	2.25	2.21	.44	4.2	2181	n/a					

BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.7	1.8	1.9	1.9	2.0	2.3	2.7	3.1	3.4	3.9	6.0
Feb	1.4	1.4	1.5	1.6	1.9	2.2	2.4	2.8	3.1	3.8	5.6
Mar	1.5	1.6	1.7	1.7	2.1	2.3	2.6	3.0	3.4	3.8	4.7
Apr	.9	1.7	1.9	1.9	1.9	2.0	2.2	2.5	2.7	3.2	3.9
May	1.7	1.8	1.8	1.9	1.9	2.0	2.1	2.3	2.5	3.0	3.8
Jun	1.4	1.9	1.9	1.9	2.0	2.0	2.1	2.3	2.6	3.0	3.6
Jul	1.2	1.2	1.3	1.7	1.8	1.9	2.0	2.3	2.5	2.7	3.5
Aug	1.5	1.6	1.7	1.8	1.8	1.9	2.1	2.3	2.5	2.9	3.6
Sep	1.7	1.7	1.8	1.8	1.9	2.0	2.2	2.5	2.8	3.7	5.9
Oct	1.8	1.8	1.9	1.9	2.0	2.1	2.4	2.7	2.9	3.2	4.1
Nov	1.7	1.8	1.9	1.9	2.1	2.3	2.6	3.0	3.3	4.4	5.3
Dec	1.8	1.8	1.9	2.0	2.1	2.4	2.9	3.6	4.2	6.3	7.0
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	2.44	2.39	.53	5.3	744	n/a					
Feb	2.22	2.16	.52	4.2	672	n/a					
Mar	2.36	2.31	.49	3.2	742	n/a					
Apr	2.12	2.10	.29	3.0	694	n/a					
May	2.04	2.03	.25	2.1	743	n/a					
Jun	2.10	2.09	.24	2.2	720	n/a					
Jul	1.93	1.90	.31	2.3	701	n/a					
Aug	1.98	1.96	.26	2.1	626	n/a					
Sep	2.11	2.08	.40	4.2	718	n/a					
Oct	2.24	2.21	.34	2.3	744	n/a					
Nov	2.40	2.36	.51	3.6	719	n/a					
Dec	2.65	2.55	.85	5.2	744	n/a					

BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.7	1.5	1.8	1.8	1.9	2.1	2.4	2.8	3.1	4.0	7.0
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	2.22	2.18	.49	6.3	8567	n/a					

n/a - not applicable

* - no data

THC Summary Statistics for 1991
Edmonton East Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.1	1.6	1.8	1.9	2.1	2.5	2.9	3.9	5.5	8.8	>20.0
Spring	1.5	1.6	1.8	1.8	2.0	2.2	2.5	3.5	4.8	8.3	17.5
Summer	1.5	1.8	2.0	2.1	2.3	2.5	2.9	3.7	4.9	9.1	>49.9
Autumn	1.2	1.8	1.9	2.0	2.4	2.6	3.0	3.5	4.1	7.5	>49.9
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	2.82	2.63	1.40	14.4	2083	n/a					
Spring	2.56	2.39	1.29	16.0	2144	n/a					
Summer	2.88	2.71	1.58	48.4	2194	n/a					
Autumn	2.90	2.72	2.31	48.7	2082	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.1	1.7	1.8	1.9	2.1	2.4	2.8	3.5	4.6	8.2	13.0
Feb	1.4	1.5	1.7	1.8	1.9	2.1	2.5	3.0	3.7	6.3	>20.0
Mar	1.5	1.6	1.7	1.7	1.9	2.1	2.5	3.7	5.0	8.9	13.9
Apr	1.6	1.7	1.8	1.8	1.9	2.1	2.6	3.6	4.9	8.5	17.5
May	1.8	1.8	1.9	2.0	2.1	2.3	2.5	3.2	4.2	7.3	13.0
Jun	1.5	1.7	1.9	2.0	2.2	2.5	2.8	3.6	5.0	9.6	>49.9
Jul	1.8	1.8	2.0	2.1	2.2	2.5	2.8	3.5	4.9	8.7	13.3
Aug	1.6	2.2	2.2	2.3	2.4	2.7	3.1	3.8	4.7	7.7	15.5
Sep	1.2	1.8	1.9	2.0	2.1	2.5	2.7	3.1	3.6	4.9	>49.9
Oct	1.7	1.8	1.8	1.9	2.2	2.6	2.9	3.4	4.0	6.8	>49.9
Nov	2.3	2.4	2.4	2.5	2.6	2.8	3.3	3.8	4.9	10.3	>49.9
Dec	1.9	2.0	2.2	2.3	2.5	2.7	3.3	5.2	7.4	10.7	15.5
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	2.73	2.57	1.23	11.9	744	n/a					
Feb	2.35	2.25	.90	9.0	660	n/a					
Mar	2.55	2.36	1.38	12.4	681	n/a					
Apr	2.55	2.37	1.35	15.9	719	n/a					
May	2.57	2.44	1.12	11.2	744	n/a					
Jun	2.85	2.64	2.16	48.4	715	n/a					
Jul	2.77	2.63	1.24	11.5	742	n/a					
Aug	3.00	2.88	1.17	13.9	737	n/a					
Sep	2.66	2.49	2.58	48.7	717	n/a					
Oct	2.78	2.62	2.08	48.2	645	n/a					
Nov	3.25	3.07	2.18	47.6	720	n/a					
Dec	3.38	3.12	1.74	13.6	679	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	1.1	1.7	1.8	1.9	2.2	2.5	2.9	3.6	4.8	8.7	>49.9
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	2.79	2.61	1.69	48.8	8503	n/a					

n/a - not applicable

* - no data

THC Summary Statistics for 1991
 Calgary Downtown Monitoring Station
 Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.5	1.7	1.8	1.9	2.0	2.2	2.4	2.8	3.2	4.2	5.9
Spring	1.5	1.6	1.7	1.8	1.8	1.9	2.1	2.3	2.4	2.8	3.8
Summer	1.6	1.7	1.7	1.8	2.0	2.1	2.2	2.3	2.4	2.6	3.4
Autumn	1.8	1.9	2.0	2.0	2.1	2.3	2.4	2.7	3.0	3.8	5.2
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	2.27	2.23	.48	4.4	2118	n/a					
Spring	2.00	1.99	.24	2.3	2196	n/a					
Summer	2.11	2.10	.20	1.8	2152	n/a					
Autumn	2.35	2.32	.35	3.4	2135	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.6	1.7	1.8	1.8	1.9	2.1	2.3	2.7	3.2	4.5	5.9
Feb	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.4	2.7	3.2	4.1
Mar	1.8	1.9	1.9	2.0	2.0	2.2	2.3	2.5	2.7	3.1	3.8
Apr	1.7	1.7	1.8	1.8	1.8	1.9	2.0	2.1	2.3	2.5	2.9
May	1.5	1.5	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.3	2.7
Jun	1.6	1.6	1.7	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.8
Jul	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.6	3.2
Aug	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.7	3.4
Sep	1.8	1.8	1.9	1.9	2.0	2.2	2.3	2.5	2.6	3.1	3.8
Oct	1.9	2.0	2.1	2.1	2.2	2.3	2.4	2.6	2.8	3.3	4.1
Nov	1.9	1.9	2.1	2.1	2.2	2.3	2.6	3.0	3.5	4.2	5.2
Dec	1.9	1.9	2.0	2.1	2.2	2.3	2.6	3.0	3.5	4.3	4.9
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	2.25	2.20	.54	4.3	720	n/a					
Feb	2.10	2.08	.30	2.6	662	n/a					
Mar	2.20	2.19	.24	2.0	738	n/a					
Apr	1.94	1.93	.17	1.2	717	n/a					
May	1.85	1.84	.13	1.2	741	n/a					
Jun	1.94	1.92	.22	1.2	666	n/a					
Jul	2.18	2.18	.13	1.2	743	n/a					
Aug	2.19	2.18	.14	1.4	743	n/a					
Sep	2.22	2.20	.25	2.0	675	n/a					
Oct	2.33	2.32	.25	2.2	740	n/a					
Nov	2.48	2.45	.46	3.3	720	n/a					
Dec	2.46	2.42	.48	3.0	736	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	1.5	1.7	1.8	1.8	2.0	2.1	2.3	2.5	2.8	3.7	5.9
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	2.18	2.15	.36	4.4	8601	n/a					

n/a - not applicable

* - no data

THC Summary Statistics for 1991
 Calgary Residential Monitoring Station
 Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.5	1.6	1.7	1.7	1.9	2.2	2.4	2.8	3.0	3.8	4.5
Spring	1.6	1.7	1.7	1.7	1.8	1.9	2.0	2.2	2.3	2.5	3.3
Summer	1.6	1.6	1.6	1.7	1.7	1.8	1.9	2.1	2.1	2.3	2.5
Autumn	1.5	1.5	1.6	1.6	1.7	1.9	2.1	2.3	2.4	2.9	3.7
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	2.24	2.20	.45	3.0	2094	n/a					
Spring	1.93	1.92	.19	1.7	2205	n/a					
Summer	1.85	1.84	.15	1.1	2180	n/a					
Autumn	1.94	1.92	.28	2.3	1814	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.9	1.9	2.0	2.1	2.2	2.3	2.7	3.0	3.3	4.2	4.5
Feb	1.7	1.9	1.9	2.0	2.1	2.2	2.4	2.6	2.8	3.5	3.8
Mar	1.7	1.7	1.7	1.8	1.8	1.9	2.1	2.3	2.4	2.7	3.3
Apr	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.7
May	1.6	1.7	1.7	1.7	1.7	1.9	2.0	2.1	2.2	2.3	2.5
Jun	1.6	1.6	1.6	1.6	1.7	1.8	1.9	2.1	2.1	2.3	2.4
Jul	1.6	1.7	1.7	1.7	1.7	1.8	1.9	2.0	2.0	2.1	2.3
Aug	1.6	1.6	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.5
Sep	1.5	1.5	1.5	1.6	1.7	2.0	2.2	2.3	2.3	2.5	2.8
Oct	1.5	1.5	1.6	1.6	1.7	1.8	2.0	2.2	2.3	2.6	3.4
Nov	1.6	1.6	1.7	1.7	1.8	1.9	2.1	2.3	2.6	3.1	3.7
Dec	1.5	1.6	1.6	1.6	1.7	1.8	2.0	2.3	2.6	3.5	4.0
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	2.48	2.44	.45	2.6	744	n/a					
Feb	2.30	2.28	.30	2.1	672	n/a					
Mar	2.00	1.99	.22	1.6	744	n/a					
Apr	1.91	1.91	.15	1.1	720	n/a					
May	1.88	1.88	.16	.9	741	n/a					
Jun	1.80	1.79	.17	.8	718	n/a					
Jul	1.83	1.82	.11	.7	721	n/a					
Aug	1.92	1.92	.14	1.1	741	n/a					
Sep	1.97	1.96	.26	1.4	518	n/a					
Oct	1.87	1.86	.24	1.9	578	n/a					
Nov	1.98	1.96	.31	2.1	718	n/a					
Dec	1.92	1.89	.36	2.5	678	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	1.5	1.6	1.6	1.7	1.8	1.9	2.1	2.4	2.6	3.2	4.5
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	1.99	1.97	.32	3.1	8293	n/a					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

THC Summary Statistics for 1991
Calgary Industrial Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.5	1.5	1.6	1.7	1.8	2.0	2.2	2.6	2.9	3.9	6.8
Spring	1.6	1.7	1.7	1.7	1.8	1.8	1.9	2.1	2.3	2.7	3.5
Summer	1.5	1.5	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.4	2.9
Autumn	1.5	1.5	1.6	1.6	1.7	1.9	2.1	2.3	2.5	3.2	7.3
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	2.08	2.04	.48	5.3	2127	n/a					
Spring	1.87	1.86	.20	1.9	2176	n/a					
Summer	1.83	1.82	.15	1.4	2197	n/a					
Autumn	1.94	1.92	.35	5.8	2158	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.7	1.7	1.7	1.8	1.9	2.1	2.4	2.8	3.2	5.3	6.8
Feb	1.6	1.7	1.7	1.7	1.8	1.9	2.1	2.5	2.7	3.4	4.1
Mar	1.6	1.6	1.7	1.7	1.7	1.8	2.0	2.2	2.4	3.0	3.5
Apr	1.6	1.6	1.7	1.7	1.8	1.8	1.9	2.1	2.3	2.5	2.9
May	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.3	3.3
Jun	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.3
Jul	1.5	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.0	2.2	2.6
Aug	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.6	2.9
Sep	1.5	1.5	1.6	1.7	1.8	1.9	2.1	2.3	2.4	3.1	7.3
Oct	1.5	1.5	1.6	1.6	1.7	1.9	2.1	2.3	2.4	2.8	3.4
Nov	1.5	1.5	1.5	1.6	1.7	1.8	2.1	2.5	2.8	3.5	4.6
Dec	1.5	1.5	1.6	1.6	1.7	1.9	2.1	2.5	2.8	3.6	4.3
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	2.23	2.17	.59	5.1	744	n/a					
Feb	2.03	2.00	.35	2.5	651	n/a					
Mar	1.91	1.89	.26	1.9	744	n/a					
Apr	1.87	1.86	.19	1.3	690	n/a					
May	1.83	1.83	.13	1.6	742	n/a					
Jun	1.80	1.79	.11	.7	720	n/a					
Jul	1.81	1.81	.13	1.1	735	n/a					
Aug	1.88	1.87	.20	1.4	742	n/a					
Sep	1.98	1.95	.35	5.8	712	n/a					
Oct	1.93	1.91	.26	1.9	732	n/a					
Nov	1.92	1.88	.43	3.1	714	n/a					
Dec	1.98	1.94	.42	2.8	732	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	1.5	1.5	1.6	1.7	1.7	1.8	2.0	2.3	2.5	3.2	7.3
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	1.93	1.91	.34	5.8	8658	n/a					

n/a - not applicable

* - no data

THC Summary Statistics for 1991
Fort Saskatchewan Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.3	1.5	1.6	1.7	1.9	2.1	2.5	3.0	3.5	4.5	14.3
Spring	1.3	1.3	1.6	1.6	1.7	1.9	2.1	2.4	2.7	3.3	5.1
Summer	1.1	1.3	1.5	1.5	1.6	1.8	2.0	2.1	2.3	2.7	7.2
Autumn	1.2	1.4	1.6	1.6	1.7	1.9	2.1	2.4	2.7	3.2	4.1
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	2.29	2.21	.71	13.0	1993	n/a					
Spring	1.98	1.94	.38	3.8	2205	n/a					
Summer	1.83	1.81	.29	6.1	2207	n/a					
Autumn	1.99	1.96	.37	2.9	2126	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.6	1.6	1.7	1.7	1.9	2.2	2.5	3.1	3.7	4.4	6.6
Feb	1.6	1.6	1.7	1.8	2.0	2.1	2.3	2.7	3.0	4.1	14.3
Mar	1.4	1.6	1.7	1.7	1.9	2.0	2.3	2.6	2.9	3.7	5.1
Apr	1.6	1.6	1.6	1.7	1.8	2.0	2.2	2.5	2.7	3.2	4.1
May	1.3	1.3	1.5	1.5	1.7	1.7	1.9	2.0	2.1	2.4	4.7
Jun	1.3	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.2	2.5	4.1
Jul	1.4	1.5	1.5	1.6	1.6	1.8	2.0	2.2	2.2	2.7	3.3
Aug	1.1	1.5	1.5	1.6	1.7	1.8	2.0	2.1	2.3	2.8	7.2
Sep	1.2	1.5	1.6	1.6	1.7	1.9	2.0	2.3	2.5	3.4	3.9
Oct	1.3	1.4	1.5	1.5	1.7	1.9	2.1	2.4	2.6	3.1	4.1
Nov	1.4	1.5	1.6	1.7	1.8	2.0	2.2	2.6	2.9	3.2	4.0
Dec	1.3	1.4	1.6	1.7	1.8	2.1	2.6	3.2	3.6	4.5	5.2
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	2.31	2.24	.64	5.0	744	n/a					
Feb	2.24	2.18	.84	12.7	546	n/a					
Mar	2.14	2.10	.43	3.7	743	n/a					
Apr	2.02	1.99	.34	2.5	718	n/a					
May	1.77	1.76	.24	3.4	744	n/a					
Jun	1.76	1.74	.29	2.8	720	n/a					
Jul	1.85	1.83	.26	1.9	743	n/a					
Aug	1.86	1.84	.32	6.1	744	n/a					
Sep	1.95	1.92	.35	2.7	720	n/a					
Oct	1.95	1.92	.37	2.8	743	n/a					
Nov	2.07	2.03	.39	2.6	663	n/a					
Dec	2.29	2.20	.67	3.9	703	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	1.1	1.4	1.5	1.6	1.7	1.9	2.1	2.5	2.9	3.8	14.3
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	2.01	1.97	.49	13.2	8531	n/a					

n/a - not applicable

* - no data

THC Summary Statistics for 1991
 Fort McMurray Monitoring Station
 Units are PPM (parts per million)

No regulations											

--BY SEASON--											

SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.5	8.6
Spring	1.0	1.3	1.5	1.5	1.6	1.7	1.8	1.9	1.9	2.4	2.9
Summer	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.9	2.2
Autumn	.6	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.4	3.2
SEASON	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Winter	1.70	1.68	.27	8.4	2113	n/a					
Spring	1.67	1.67	.17	1.9	2194	n/a					
Summer	1.48	1.47	.16	1.2	2145	n/a					
Autumn	1.70	1.69	.21	2.6	2177	n/a					
--BY MONTH--											

MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.2	1.3	1.3	1.4	1.5	1.7	1.8	1.9	2.0	2.4	3.5
Feb	1.4	1.4	1.5	1.5	1.6	1.7	1.8	2.0	2.2	2.6	8.6
Mar	1.3	1.4	1.5	1.5	1.6	1.7	1.8	1.9	2.1	2.6	2.9
Apr	1.0	1.4	1.4	1.5	1.6	1.6	1.7	1.8	1.9	2.0	2.1
May	1.2	1.3	1.4	1.5	1.6	1.6	1.7	1.8	1.8	2.0	2.2
Jun	1.3	1.3	1.4	1.4	1.5	1.5	1.6	1.7	1.7	1.8	2.2
Jul	1.0	1.1	1.1	1.2	1.4	1.5	1.6	1.6	1.7	1.8	1.9
Aug	1.0	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	1.9	2.1
Sep	1.3	1.3	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.0	2.1
Oct	.6	1.2	1.4	1.5	1.6	1.7	1.9	2.1	2.2	2.8	3.2
Nov	1.4	1.4	1.5	1.5	1.5	1.6	1.7	1.8	1.8	2.1	2.3
Dec	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.4	3.4
MONTH	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
Jan	1.67	1.66	.24	3.3	732	n/a					
Feb	1.74	1.72	.35	7.2	672	n/a					
Mar	1.75	1.73	.21	1.6	735	n/a					
Apr	1.65	1.64	.13	1.1	718	n/a					
May	1.62	1.62	.13	1.0	741	n/a					
Jun	1.53	1.53	.10	.9	719	n/a					
Jul	1.45	1.45	.16	.9	703	n/a					
Aug	1.46	1.45	.20	1.1	723	n/a					
Sep	1.71	1.70	.16	.8	717	n/a					
Oct	1.77	1.75	.29	2.6	740	n/a					
Nov	1.63	1.62	.13	.9	720	n/a					
Dec	1.70	1.69	.22	2.2	709	n/a					
--BY YEAR--											

YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	.2	1.1	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.3	8.6
YEAR	Arithmetic	Geometric	Arithmetic	Range	N	Number of Exceedances					
	Mean	Mean	Std Dev								
1991	1.64	1.63	.23	8.4	8629	n/a					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

THC Summary Statistics for 1991
Fort MacKay Monitoring Station
Units are PPM (parts per million)

No regulations											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.1	2.3	2.5	2.9
Spring	1.0	1.0	1.1	1.2	1.4	1.5	1.7	1.9	2.0	2.3	3.5
Summer	1.0	1.1	1.2	1.2	1.4	1.5	1.6	1.8	1.9	2.1	2.8
Autumn	1.2	1.2	1.3	1.4	1.5	1.6	1.8	1.9	2.0	2.2	2.6
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	1.77	1.75	.26	1.7	2155	n/a					
Spring	1.55	1.53	.29	2.5	2204	n/a					
Summer	1.50	1.49	.22	1.8	1740	n/a					
Autumn	1.65	1.64	.21	1.4	2174	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.2	1.3	1.3	1.3	1.4	1.5	1.7	1.8	1.9	2.1	2.7
Feb	1.4	1.5	1.6	1.7	1.7	1.8	1.9	2.1	2.2	2.4	2.5
Mar	1.4	1.5	1.6	1.6	1.7	1.7	1.9	2.1	2.2	2.8	3.5
Apr	1.0	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.9	2.1	2.6
May	1.0	1.0	1.0	1.1	1.2	1.4	1.5	1.6	1.7	2.0	2.3
Jun	1.0	1.1	1.1	1.2	1.2	1.4	1.6	1.9	2.0	2.2	2.5
Jul	1.1	1.1	1.2	1.2	1.4	1.5	1.6	1.8	1.9	2.0	2.2
Aug	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.8	2.1	2.8
Sep	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.6	1.7	1.9	2.6
Oct	1.3	1.4	1.5	1.5	1.6	1.6	1.8	1.9	2.0	2.2	2.6
Nov	1.5	1.6	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.3	2.4
Dec	1.5	1.5	1.6	1.6	1.7	1.8	2.1	2.3	2.4	2.6	2.9
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	1.57	1.56	.21	1.5	741	n/a					
Feb	1.82	1.81	.17	1.1	670	n/a					
Mar	1.80	1.78	.24	2.1	743	n/a					
Apr	1.48	1.46	.23	1.6	720	n/a					
May	1.38	1.36	.21	1.3	741	n/a					
Jun	1.46	1.43	.28	1.5	510	n/a					
Jul	1.50	1.49	.21	1.1	690	n/a					
Aug	1.55	1.54	.17	1.5	540	n/a					
Sep	1.48	1.47	.16	1.4	719	n/a					
Oct	1.68	1.67	.16	1.3	736	n/a					
Nov	1.80	1.79	.16	.9	719	n/a					
Dec	1.92	1.90	.26	1.4	744	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1991	1.0	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.1	2.4	3.5
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1991	1.62	1.60	.27	2.5	8273	n/a					

n/a - not applicable				* - no data							

n/a - not applicable

* - no data

Annual Average Concentration										
Year: 1991										
Pollutant: THC [ppm]										

Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort	Fort	Fort	
							Sask.	McMurray	Mackay	

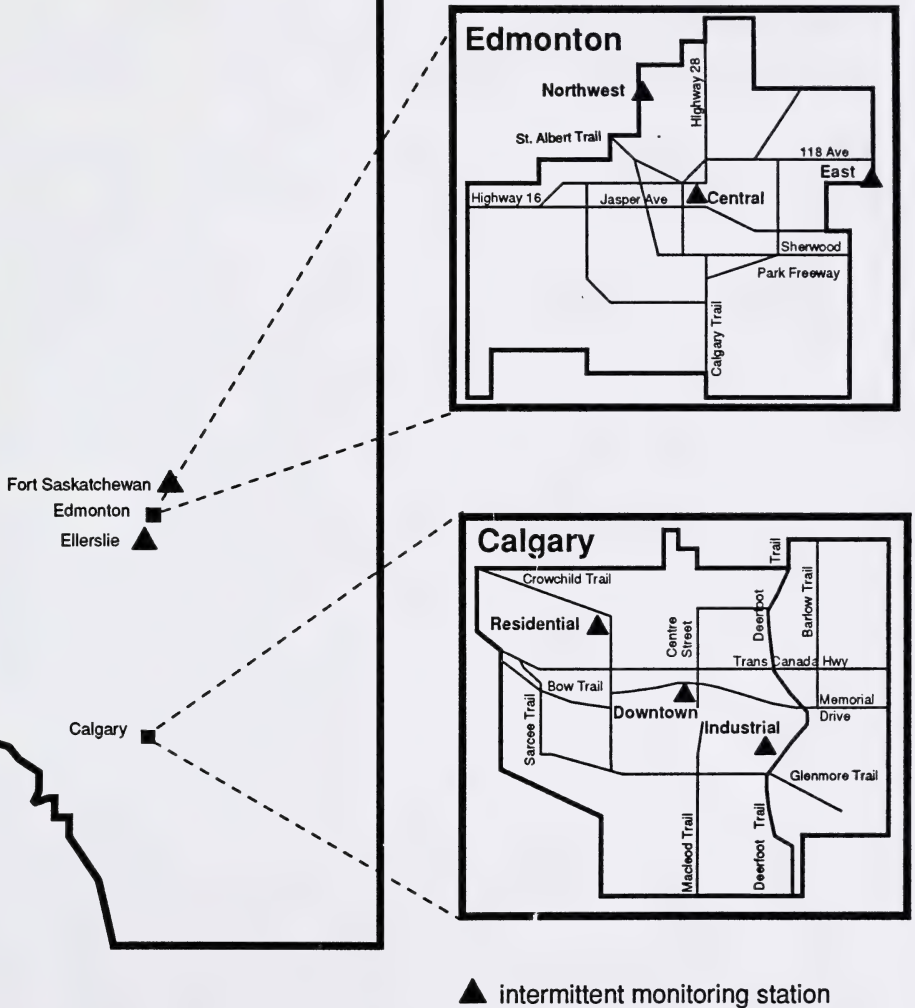
1976	2.0	2.4	2.4	2.2	1.6	2.0	*	*	*	
1977	2.0	2.1	2.6	2.4	2.0	2.0	*	*	*	
1978	2.2	2.4	3.6	2.4	2.0	2.1	*	*	*	
1979	1.8	2.6	2.5	2.9	2.1	2.0	*	*	*	
1980	2.1	2.5	2.5	2.2	1.8	2.2	*	*	*	
1981	2.2	2.5	2.8	2.1	1.8	2.3	b	b	*	
1982	2.3	2.3	2.5	2.1	1.8	2.0	1.6	1.6a	*	
1983	2.3	2.3	3.8	2.2	2.0	2.2	1.4	b	*	
1984	2.4	2.2	3.7	2.2	1.9	2.2	1.5	1.9a	*	
1985	2.9	2.1	2.0	2.1	1.9	2.1	1.3	1.7	*	
1986	2.4	2.2	2.2	2.2	2.0	2.2	2.0	2.0	b	
1987	2.5	2.1	1.8	2.3	2.0	2.0	2.1	1.9	1.9	
1988	2.2	2.2	1.9	2.1	2.0	2.1	2.3	1.8	1.8	
1989	2.1	2.2	1.8	2.2	2.0	2.1	1.8a	2.3	1.9	
1990	2.0	2.2	1.6	2.1	2.0	2.0	2.0	1.6	1.9	
1991	1.8	2.2	2.8	2.2	2.0	1.9	2.0	1.6	1.6	

a ≥ 50% to < 75% of data available

b less than 50% of data available

* no data available

LOCATION OF INTERMITTENT AIR QUALITY MONITORING STATIONS



Location of Intermittent Monitoring Stations

Station Name	Station Location
<hr/>	
Edmonton Central (Downtown) Monitoring Unit (EDMU)	10255 - 104 St.
Edmonton Northwest (Residential) Monitoring Unit (ERMU)	13335 - 127 St.
Edmonton East (Industrial) Monitoring Unit (EIMU)	105 Ave. and 17 St.
Calgary Downtown Monitoring Unit (CDMU)	611 - 4 St. S.W.
Calgary Residential Monitoring Unit (CRMU)	39 St. and 29 Ave. N.W.
Calgary Industrial Monitoring Unit (CIMU)	49 Ave. and 15 St. S.E.
Fort Saskatchewan Monitoring Unit (EMMU)	100 Ave. and 98 St.
Ellerslie	Ellerslie Road and Whitemud Creek

Pollutant Name : SUSPENDED PARTICULATES								Percentage of Readings > Standard
Ambient 24 Hr. Regulation = 100 µg/m ³								
EDMU	MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	24 hr
1991 Jan	29.6	*	*	42.3	*	*	57.6	0.0
Feb	25.8	*	*	43.7	*	*	93.9	0.0
Mar	21.2	*	*	71.2	*	*	183.6	50.0
Apr	17.4	*	*	62.1	*	*	154.8	20.0
May	40.0	*	*	55.2	*	*	86.2	0.0
Jun	22.6	*	*	34.0	*	*	45.2	0.0
Jul	49.9	*	*	60.2	*	*	73.4	0.0
Aug	34.2	*	*	60.3	*	*	82.8	0.0
Sep	29.0	*	*	46.1	*	*	81.7	0.0
Oct	17.5	*	*	34.7	*	*	79.6	0.0
Nov	35.1	*	*	42.6	*	*	76.0	0.0
Dec	24.8	*	*	49.9	*	*	123.9	25.0
ERMU	MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	24 hr
1991 Jan	25.2	*	*	34.3	*	*	51.1	0.0
Feb	23.3	*	*	35.6	*	*	68.9	0.0
Mar	18.0	*	*	49.4	*	*	94.0	0.0
Apr	17.5	*	*	53.1	*	*	94.5	0.0
May	28.5	*	*	43.0	*	*	64.3	0.0
Jun	16.0	*	*	27.0	*	*	45.6	0.0
Jul	30.8	*	*	42.4	*	*	62.2	0.0
Aug	35.4	*	*	52.0	*	*	77.4	0.0
Sep	22.4	*	*	41.0	*	*	86.3	0.0
Oct	20.8	*	*	32.9	*	*	85.3	0.0
Nov	31.6	*	*	38.0	*	*	49.6	0.0
Dec	16.3	*	*	31.1	*	*	51.1	0.0
EIMU	MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	24 hr
1991 Jan	18.6	*	*	24.9	*	*	31.5	0.0
Feb	18.9	*	*	25.8	*	*	51.7	0.0
Mar	26.8	*	*	53.2	*	*	132.5	16.7
Apr	31.1	*	*	54.9	*	*	89.8	0.0
May	33.3	*	*	51.7	*	*	87.5	0.0
Jun	13.6	*	*	33.2	*	*	48.4	0.0
Jul	39.2	*	*	53.2	*	*	74.4	0.0
Aug	33.9	*	*	55.4	*	*	88.0	0.0
Sep	19.8	*	*	35.0	*	*	72.3	0.0
Oct	15.5	*	*	45.0	*	*	147.2	20.0
Nov	23.0	*	*	36.1	*	*	61.7	0.0
Dec	14.2	*	*	27.4	*	*	52.5	0.0
Trend of the Average Annual Concentration								
Year	EDMU	ERMU	EIMU					
1976	*	*	*					
1977	*	*	*					
1978	*	*	*					
1979	*	*	*					
1980	98.2	81.7	70.2					
1981	98.1	62.8	64.2					
1982	69.5	49.2	59.3					
1983	62.1	53.5	47.3					
1984	71.7	48.2	47.3					
1985	51.7	38.6	43.2					
1986	83.9	43.5	50.1					
1987	72.7	45.5	49.9					
1988	63.3	39.6	51.6					
1989	55.4	42.6	46.0					
1990	63.2	47.3	52.1					
1991	50.2	40.0	41.3					

* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

Pollutant Name : SUSPENDED PARTICULATES								Percentage of Readings > Standard
Ambient 24 Hr. Regulation = 100 µg/m3								
CDMU	MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	24 hr
1991 Jan	30.6	*	*	54.1	*	*	99.5	0.0
Feb	47.2	*	*	76.8	*	*	148.8	25.0
Mar	25.2	*	*	64.4	*	*	280.7	33.3
Apr	40.4	*	*	57.8	*	*	91.7	0.0
May	25.1	*	*	44.4	*	*	105.5	20.0
Jun	21.0	*	*	38.2	*	*	57.9	0.0
Jul	46.1	*	*	60.6	*	*	80.7	0.0
Aug	39.0	*	*	56.2	*	*	68.4	0.0
Sep	27.3	*	*	55.1	*	*	121.7	40.0
Oct	26.9	*	*	44.7	*	*	76.1	0.0
Nov	39.4	*	*	76.9	*	*	124.0	20.0
Dec	38.8	*	*	58.3	*	*	93.0	0.0
CRMU	MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	24 hr
1991 Jan	19.7	*	*	24.7	*	*	40.5	0.0
Feb	26.2	*	*	39.8	*	*	90.7	0.0
Mar	18.8	*	*	39.7	*	*	111.0	16.7
Apr	25.7	*	*	42.1	*	*	76.6	0.0
May	17.1	*	*	29.6	*	*	47.0	0.0
Jun	10.1	*	*	22.7	*	*	54.0	0.0
Jul	27.7	*	*	38.4	*	*	61.1	0.0
Aug	29.5	*	*	44.5	*	*	64.9	0.0
Sep	21.6	*	*	35.9	*	*	78.9	0.0
Oct	18.1	*	*	34.9	*	*	89.8	0.0
Nov	23.6	*	*	43.7	*	*	60.5	0.0
Dec	24.1	*	*	46.2	*	*	153.2	20.0
CIMU	MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	24 hr
1991 Jan	39.8	*	*	78.3	*	*	201.3	40.0
Feb	45.1	*	*	70.1	*	*	169.0	25.0
Mar	25.3	*	*	74.9	*	*	199.4	33.3
Apr	32.0	*	*	71.3	*	*	195.3	20.0
May	28.5	*	*	49.9	*	*	104.0	20.0
Jun	24.4	*	*	50.6	*	*	103.7	20.0
Jul	51.0	*	*	81.4	*	*	129.8	40.0
Aug	50.0	*	*	81.0	*	*	119.5	20.0
Sep	34.5	*	*	66.7	*	*	150.5	40.0
Oct	32.4	*	*	70.8	*	*	157.3	40.0
Nov	61.1	*	*	105.3	*	*	148.4	60.0
Dec	68.3	*	*	89.7	*	*	186.1	20.0
Trend of the Average Annual Concentration								
Year	CDMU	CRMU	CIMU					
1976	*	*	*					
1977	*	*	*					
1978	*	*	*					
1979	*	*	*					
1980	165.0	70.4	150.0					
1981	147.0	69.3	133.0					
1982	117.0	48.7	98.1					
1983	80.7	39.4	81.7					
1984	72.1	40.6	70.0					
1985	59.1	38.2	62.5					
1986	79.5	49.5	83.4					
1987	85.3	47.9	75.6					
1988	76.8	38.7	71.1					
1989	62.1	34.8	68.2					
1990	62.4	41.2	73.9					
1991	57.3	36.9	74.2					

* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

Pollutant Name : SUSPENDED PARTICULATES									Percentage of Readings > Standard
Ambient 24 Hr. Regulation = 100 µg/m3									
EMMU	MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	24 hr	
1991 Jan	16.6	*	*	20.5	*	*	28.2	0.0	
Feb	14.9	*	*	19.3	*	*	40.1	0.0	
Mar	11.8	*	*	27.7	*	*	59.8	0.0	
Apr	10.6	*	*	32.0	*	*	82.6	0.0	
May	27.5	*	*	40.0	*	*	66.0	0.0	
Jun	9.7	*	*	15.6	*	*	30.7	0.0	
Jul	20.5	*	*	27.0	*	*	50.0	0.0	
Aug	27.0	*	*	38.7	*	*	60.5	0.0	
Sep	17.2	*	*	28.0	*	*	72.6	0.0	
Oct	11.7	*	*	21.4	*	*	71.9	0.0	
Nov	14.9	*	*	24.2	*	*	46.6	0.0	
Dec	12.0	*	*	21.2	*	*	35.0	0.0	
Ellerslie	MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	24 hr	
1991 Jan	9.7	*	*	14.4	*	*	20.6	0.0	
Feb	8.4	*	*	12.5	*	*	26.1	0.0	
Mar	9.5	*	*	22.2	*	*	41.7	0.0	
Apr	7.8	*	*	25.9	*	*	62.2	0.0	
May	25.1	*	*	39.3	*	*	61.4	0.0	
Jun	10.3	*	*	18.4	*	*	36.2	0.0	
Jul	28.3	*	*	35.2	*	*	50.7	0.0	
Aug	23.1	*	*	33.9	*	*	49.7	0.0	
Sep	13.3	*	*	24.9	*	*	67.5	0.0	
Oct	19.7	*	*	35.6	*	*	78.7	0.0	
Nov	*	*	*	*	*	*	*	*	
Dec	*	*	*	*	*	*	*	*	
Trend of the Average Annual Concentration									
Year		Ellerslie			EMMU				
1976		*			*				
1977		*			*				
1978		*			*				
1979		*			*				
1980		*			*				
1981		*			*				
1982		*			35.3				
1983		*			34.4				
1984		*			41.2				
1985		14.3			30.7				
1986		24.7			36.3				
1987		28.5			42.6				
1988		27.1			33.9				
1989		20.8			28.5 a				
1990		22.0			30.6				
1991		26.2			26.3				

* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

Pollutant Name : BENZO (A) PYRENE [µg/1000 m3]								
EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.08	*	*	0.17	*	*	0.40
	Feb	0.05	*	*	0.23	*	*	0.93
	Mar	0.00	*	*	0.09	*	*	0.76
	Apr	0.05	*	*	0.10	*	*	0.24
	May	0.01	*	*	0.03	*	*	0.15
	Jun	0.00	*	*	0.02	*	*	0.14
	Jul	0.05	*	*	0.08	*	*	0.14
	Aug	0.01	*	*	0.05	*	*	0.17
	Sep	0.04	*	*	0.12	*	*	0.23
	Oct	0.02	*	*	0.07	*	*	0.27
	Nov	0.15	*	*	0.41	*	*	0.77
	Dec	0.05	*	*	0.19	*	*	0.48
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.04	*	*	0.21	*	*	0.63
	Feb	0.06	*	*	0.18	*	*	1.36
	Mar	0.00	*	*	0.09	*	*	0.50
	Apr	0.03	*	*	0.06	*	*	0.16
	May	0.00	*	*	0.01	*	*	0.09
	Jun	0.00	*	*	0.01	*	*	0.10
	Jul	0.00	*	*	0.02	*	*	0.27
	Aug	0.00	*	*	0.04	*	*	0.14
	Sep	0.03	*	*	0.11	*	*	0.30
	Oct	0.00	*	*	0.10	*	*	0.62
	Nov	0.06	*	*	0.25	*	*	0.49
	Dec	0.12	*	*	0.30	*	*	0.68
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.00	*	*	0.09	*	*	0.37
	Feb	0.00	*	*	0.03	*	*	0.26
	Mar	0.00	*	*	0.01	*	*	0.20
	Apr	0.00	*	*	0.00	*	*	0.06
	May	0.00	*	*	0.00	*	*	0.14
	Jun	0.00	*	*	0.00	*	*	0.14
	Jul	0.00	*	*	0.00	*	*	0.01
	Aug	0.00	*	*	0.02	*	*	0.07
	Sep	0.01	*	*	0.02	*	*	0.05
	Oct	0.00	*	*	0.03	*	*	0.11
	Nov	0.02	*	*	0.06	*	*	0.25
	Dec	0.02	*	*	0.03	*	*	0.05
Trend of the Average Annual Concentration								
	Year	EDMU	ERMU	EIMU				
	1976							
	1977							
	1978							
	1979							
	1980							
	1981							
	1982	0.22	0.11	0.07				
	1983	0.20	0.10	0.05				
	1984	0.25	0.14	0.11				
	1985	0.15	0.09	0.06				
	1986	0.38	0.17	0.07				
	1987	0.18	0.13	0.07				
	1988	0.52	0.21	0.09				
	1989	0.27	0.31	0.08				
	1990	0.27	0.25	0.05				
	1991	0.13	0.12	0.02				

* - Not available.

a - Between 50-75% operational and may not be representative.

b - Below 50% operational and results not representative.

Pollutant Name : BENZO (A) PYRENE [$\mu\text{g}/1000 \text{ m}^3$]								
CDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.07	*	*	0.18	*	*	0.78
	Feb	0.04	*	*	0.12	*	*	0.50
	Mar	0.03	*	*	0.10	*	*	0.91
	Apr	0.03	*	*	0.07	*	*	0.66
	May	0.00	*	*	0.02	*	*	0.23
	Jun	0.00	*	*	0.02	*	*	0.29
	Jul	0.00	*	*	0.02	*	*	0.14
	Aug	0.00	*	*	0.06	*	*	0.41
	Sep	0.04	*	*	0.11	*	*	0.25
	Oct	0.07	*	*	0.10	*	*	0.19
	Nov	0.38	*	*	0.55	*	*	0.64
	Dec	0.12	*	*	0.25	*	*	0.80
CRMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.00	*	*	0.07	*	*	0.60
	Feb	0.00	*	*	0.01	*	*	0.25
	Mar	0.00	*	*	0.01	*	*	0.12
	Apr	0.00	*	*	0.00	*	*	0.04
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.00
	Jul	0.00	*	*	0.00	*	*	0.00
	Aug	0.00	*	*	0.01	*	*	0.03
	Sep	0.01	*	*	0.03	*	*	0.17
	Oct	0.00	*	*	0.02	*	*	0.10
	Nov	0.09	*	*	0.13	*	*	0.18
	Dec	0.03	*	*	0.10	*	*	0.30
CIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.00	*	*	0.14	*	*	1.06
	Feb	0.00	*	*	0.05	*	*	0.63
	Mar	0.00	*	*	0.06	*	*	0.54
	Apr	0.00	*	*	0.01	*	*	0.07
	May	0.00	*	*	0.01	*	*	0.21
	Jun	0.00	*	*	0.00	*	*	0.07
	Jul	0.00	*	*	0.02	*	*	0.14
	Aug	0.05	*	*	0.06	*	*	0.09
	Sep	0.03	*	*	0.10	*	*	0.28
	Oct	0.05	*	*	0.07	*	*	0.13
	Nov	0.38	*	*	0.58	*	*	0.95
	Dec	0.03	*	*	0.36	*	*	1.04
Trend of the Average Annual Concentration								
Year		CDMU	CRMU	CIMU				
1976								
1977								
1978								
1979								
1980								
1981								
1982		0.44	0.05	0.15				
1983		0.31	0.06	0.15				
1984		0.25	0.07	0.19				
1985		0.12	0.03	0.10				
1986		0.21	0.06	0.18				
1987		0.27	0.07	0.14				
1988		0.47	0.09	0.26				
1989		0.41	0.09	0.24				
1990		0.18	0.03	0.11				
1991		0.13	0.03	0.12				

* - Not available.

a - Between 50-75% operational and may not be representative.

b - Below 50% operational and results not representative.

Pollutant Name : BENZO (A) PYRENE [$\mu\text{g}/1000 \text{ m}^3$]							
EMMU		MIN	25 %	50 %	MEAN	75 %	90 % PEAK
1991	Jan	0.05	*	*	0.17	*	0.56
	Feb	0.00	*	*	0.01	*	0.23
	Mar	0.00	*	*	0.02	*	0.22
	Apr	0.00	*	*	0.01	*	0.20
	May	0.00	*	*	0.00	*	0.02
	Jun	0.00	*	*	0.00	*	0.00
	Jul	0.00	*	*	0.00	*	0.03
	Aug	0.00	*	*	0.00	*	0.05
	Sep	0.00	*	*	0.02	*	0.07
	Oct	0.00	*	*	0.02	*	0.10
	Nov	0.01	*	*	0.05	*	0.25
	Dec	0.01	*	*	0.05	*	0.31
ELLERSLIE		MIN	25 %	50 %	MEAN	75 %	90 % PEAK
1991	Jan	0.00	*	*	0.03	*	0.25
	Feb	0.00	*	*	0.00	*	0.05
	Mar	0.00	*	*	0.01	*	0.11
	Apr	0.00	*	*	0.00	*	0.03
	May	0.00	*	*	0.00	*	0.00
	Jun	0.00	*	*	0.00	*	0.00
	Jul	0.00	*	*	0.00	*	0.00
	Aug	0.00	*	*	0.00	*	0.00
	Sep	0.00	*	*	0.01	*	0.04
	Oct	0.00	*	*	0.02	*	0.03
	Nov	*	*	*	*	*	*
	Dec	*	*	*	*	*	*
Trend of the Average Annual Concentration							
Year	Ellerslie		EMMU				
1976							
1977							
1978							
1979							
1980							
1981							
1982						0.03	
1983						0.03	
1984						0.10	
1985		0.01				0.03	
1986		0.03				0.06	
1987		0.02				0.05	
1988		0.07				0.10	
1989		0.03				0.03	
1990		0.01				0.03	
1991		0.01				0.03	

* - Not available.

a - Between 50-75% operational and may not be representative.

b - Below 50% operational and results not representative.

Pollutant Name : LEAD [µg/m3]								
EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.09	*	*	0.13	*	*	0.22
	Feb	0.03	*	*	0.07	*	*	0.11
	Mar	0.03	*	*	0.11	*	*	0.52
	Apr	0.00	*	*	0.02	*	*	0.08
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.03	*	*	0.13
	Jul	0.02	*	*	0.03	*	*	0.06
	Aug	0.00	*	*	0.02	*	*	0.07
	Sep	0.01	*	*	0.03	*	*	0.06
	Oct	0.02	*	*	0.04	*	*	0.08
	Nov	0.00	*	*	0.04	*	*	0.13
	Dec	0.00	*	*	0.03	*	*	0.04
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.01	*	*	0.04	*	*	0.07
	Feb	0.01	*	*	0.04	*	*	0.50
	Mar	0.04	*	*	0.07	*	*	0.11
	Apr	0.00	*	*	0.01	*	*	0.03
	May	0.00	*	*	0.00	*	*	0.01
	Jun	0.00	*	*	0.02	*	*	0.04
	Jul	0.00	*	*	0.01	*	*	0.02
	Aug	0.01	*	*	0.01	*	*	0.03
	Sep	0.00	*	*	0.02	*	*	0.06
	Oct	0.00	*	*	0.02	*	*	0.06
	Nov	0.00	*	*	0.02	*	*	0.05
	Dec	0.00	*	*	0.01	*	*	0.02
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.02	*	*	0.04	*	*	0.06
	Feb	0.01	*	*	0.03	*	*	0.11
	Mar	0.03	*	*	0.06	*	*	0.19
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.01
	Jun	0.00	*	*	0.03	*	*	0.13
	Jul	0.00	*	*	0.02	*	*	0.07
	Aug	0.00	*	*	0.02	*	*	0.05
	Sep	0.00	*	*	0.01	*	*	0.03
	Oct	0.00	*	*	0.02	*	*	0.06
	Nov	0.00	*	*	0.02	*	*	0.03
	Dec	0.00	*	*	0.00	*	*	0.00
Trend of the Average Annual Concentration								
Year		EDMU		ERMU		EIMU		
1976								
1977								
1978								
1979								
1980		0.53		0.48		0.22		
1981		0.52		0.42		0.20		
1982		0.46		0.37		0.19		
1983		0.36		0.32		0.13		
1984		0.41		0.31		0.13		
1985		0.30		0.23		0.11		
1986		0.23		0.19		0.09		
1987		0.18		0.14		0.06		
1988		0.16		0.12		0.07		
1989		0.22		0.19		0.07		
1990		0.08		0.10		0.04		
1991		0.05		0.02		0.02		

* - Not available.

a - Between 50-75% operational and may not be representative.

b - Below 50% operational and results not representative.

Pollutant Name : LEAD [µg/m3]								
CDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.01	*	*	0.04	*	*	0.10
	Feb	0.00	*	*	0.03	*	*	0.08
	Mar	0.00	*	*	0.05	*	*	0.15
	Apr	0.00	*	*	0.02	*	*	0.03
	May	0.00	*	*	0.01	*	*	0.01
	Jun	0.00	*	*	0.02	*	*	0.05
	Jul	0.00	*	*	0.04	*	*	0.09
	Aug	0.00	*	*	0.02	*	*	0.07
	Sep	0.00	*	*	0.01	*	*	0.04
	Oct	0.00	*	*	0.02	*	*	0.05
	Nov	0.01	*	*	0.04	*	*	0.14
	Dec	0.00	*	*	0.01	*	*	0.02
CRMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.00	*	*	0.02	*	*	0.04
	Feb	0.00	*	*	0.02	*	*	0.05
	Mar	0.02	*	*	0.04	*	*	0.08
	Apr	0.00	*	*	0.01	*	*	0.03
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.01	*	*	0.02
	Jul	0.00	*	*	0.02	*	*	0.06
	Aug	0.00	*	*	0.00	*	*	0.01
	Sep	0.00	*	*	0.01	*	*	0.02
	Oct	0.00	*	*	0.02	*	*	0.03
	Nov	0.03	*	*	0.04	*	*	0.06
	Dec	0.00	*	*	0.01	*	*	0.02
CIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.01	*	*	0.07	*	*	0.21
	Feb	0.03	*	*	0.08	*	*	0.28
	Mar	0.06	*	*	0.11	*	*	0.24
	Apr	0.00	*	*	0.02	*	*	0.09
	May	0.00	*	*	0.01	*	*	0.02
	Jun	0.01	*	*	0.04	*	*	0.07
	Jul	0.02	*	*	0.04	*	*	0.09
	Aug	0.02	*	*	0.04	*	*	0.07
	Sep	0.00	*	*	0.04	*	*	0.09
	Oct	0.00	*	*	0.03	*	*	0.08
	Nov	0.05	*	*	0.08	*	*	0.15
	Dec	0.00	*	*	0.05	*	*	0.14
Trend of the Average Annual Concentration								
Year		CDMU	CRMU	CIMU				
1976								
1977								
1978								
1979								
1980		0.66	0.34	0.42				
1981		0.64	0.26	0.48				
1982		0.61	0.28	0.43				
1983		0.44	0.23	0.41				
1984		0.39	0.16	0.38				
1985		0.27	0.13	0.30				
1986		0.24	0.11	0.31				
1987		0.18	0.09	0.22				
1988		0.16	0.07	0.25				
1989		0.17	0.10	0.25				
1990		0.09	0.05	0.14				
1991		0.03	0.02	0.05				

* - Not available.

a - Between 50-75% operational and may not be representative.

b - Below 50% operational and results not representative.

Pollutant Name : LEAD [µg/m3]								
EMMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.02	*	*	0.03	*	*	0.04
	Feb	0.00	*	*	0.03	*	*	0.08
	Mar	0.00	*	*	0.04	*	*	0.16
	Apr	0.00	*	*	0.00	*	*	0.01
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.02	*	*	0.03
	Jul	0.00	*	*	0.01	*	*	0.03
	Aug	0.00	*	*	0.01	*	*	0.02
	Sep	0.00	*	*	0.01	*	*	0.04
	Oct	0.00	*	*	0.00	*	*	0.01
	Nov	0.01	*	*	0.02	*	*	0.03
	Dec	0.00	*	*	0.00	*	*	0.01
ELLERSLIE		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1991	Jan	0.00	*	*	0.01	*	*	0.02
	Feb	0.00	*	*	0.01	*	*	0.02
	Mar	0.02	*	*	0.04	*	*	0.06
	Apr	0.00	*	*	0.00	*	*	0.01
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.02	*	*	0.06
	Jul	0.00	*	*	0.01	*	*	0.03
	Aug	0.00	*	*	0.01	*	*	0.02
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.01	*	*	0.02
	Nov	*	*	*	*	*	*	*
	Dec	*	*	*	*	*	*	*
Trend of the Average Annual Concentration								
Year		Ellerslie			EMMU			
1976								
1977								
1978								
1979								
1980								
1981								
1982					0.10			
1983					0.11			
1984					0.15			
1985		0.03			0.10			
1986		0.03			0.07			
1987		0.02			0.07			
1988		0.04			0.04			
1989		0.04			0.06			
1990		0.02			0.03			
1991		0.01			0.01			

* - Not available.

a - Between 50-75% operational and may not be representative.

b - Below 50% operational and results not representative.

VINYL CHLORIDE MONOMER
FORT SASKATCHEWAN 1991
(ppb)

Station: Fort Saskatchewan Monitoring Unit				Station: West of Dow			
MONTH	MIN	MEAN	MAX	MONTH	MIN	MEAN	MAX
Jan	0.00	0.01	0.11	Jan	0.00	0.48	0.95
Feb	0.00	0.00	0.00	Feb	0.00	0.00	0.00
Mar	0.00	0.00	0.00	Mar	*	*	*
Apr	0.00	0.00	0.00	Apr	*	*	*
May	0.00	0.02	0.20	May	*	*	*
Jun	0.00	0.01	0.06	Jun	*	*	*
Jul	0.00	0.00	0.00	Jul	*	*	*
Aug	0.00	0.00	0.00	Aug	*	*	*
Sep	0.00	0.00	0.00	Sep	*	*	*
Oct	0.00	0.00	0.00	Oct	*	*	*
Nov	*	*	*	Nov	*	*	*
Dec	*	*	*	Dec	*	*	*

Station: BF Goodrich			
MONTH	MIN	MEAN	MAX
Jan	0.00	0.00	0.00
Feb	0.00	0.00	0.00
Mar	*	*	*
Apr	*	*	*
May	*	*	*
Jun	*	*	*
Jul	*	*	*
Aug	*	*	*
Sep	*	*	*
Oct	*	*	*
Nov	*	*	*
Dec	*	*	*

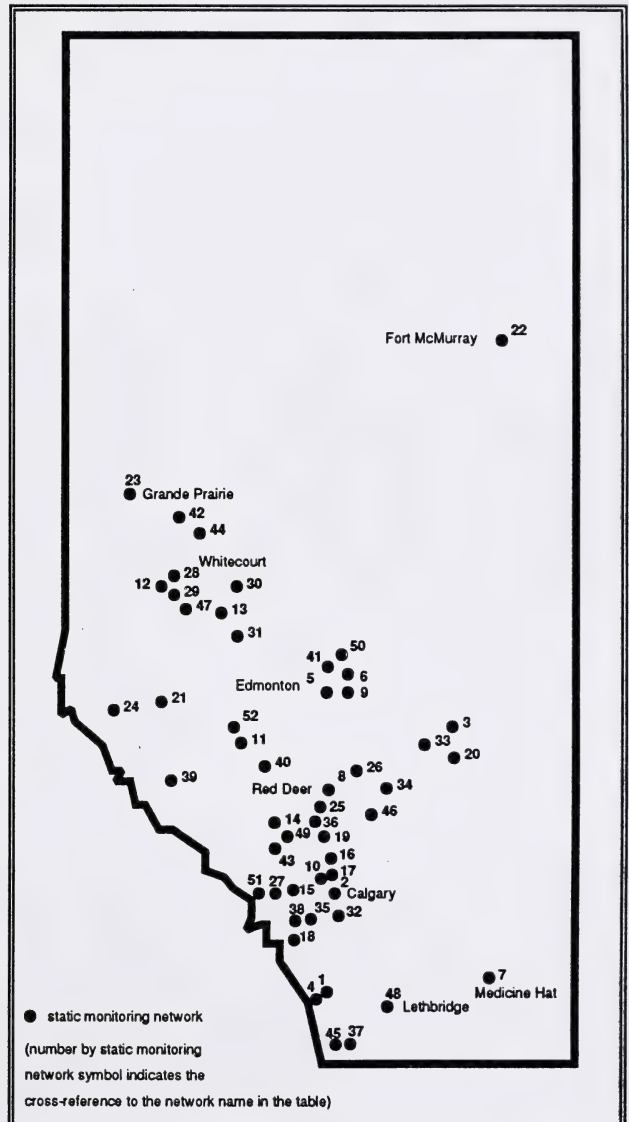
* no data

LOCATION OF STATIC AIR QUALITY MONITORING NETWORKS

Map Location	Network Location
1	Blairmore
2	Calgary
3	Camrose
4	Coleman
5	Edmonton
6	Fort Saskatchewan
7	Medicine Hat
8	Red Deer
9	Sherwood Park
10	Balzac
11	Buck Lake
12	Bigstone
13	Blue Ridge
14	Caroline
16	Carstairs
15	Cochrane
17	Crossfield
18	Diamond Valley
19	Didsbury
20	Edburg
21	Edson
22	Fort McMurray
23	Grande Prairie
24	Hinton
25	Innisfail
26	Joffre
27	Jumping Pound
28	Kaybob
29	Kaybob (south)
30	Lone Pine Creek
31	Mayerthorpe
32	Mazeppa
33	New Norway
34	Nevis
35	Okotoks
36	Olds
37	Pincher Creek
38	Quirk Creek
39	Ram River
40	Rimbey
41	St. Albert
42	Simonette
43	Sundre
44	Valleyview
45	Waterton

Map Location	Network Location
46	Wimbome
47	Windfall
48	Lethbridge
49	Raven Brood

Map Location	Network Location
50	Redwater
51	Exshaw
52	Drayton Valley



Alberta

ENVIRONMENTAL PROTECTION
Environmental Assessment Division
Environmental Quality Monitoring Branch

STATIC MONITORING RESULTS
 YEAR: 1991
 POLLUTANT: TOTAL DUSTFALL
 MONITORING PERIOD: ONE MONTH
 GUIDELINE: 53 MG/100CM2/30 DAYS (RESIDENTIAL)
 GUIDELINE: 158 MG/100CM2/30 DAYS (INDUSTRIAL)
 UNITS: MG/100CM2/30 DAYS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG	# OF STATIONS
Blairmore	41.9	22.2	54.8	61.7	72.5	59.4	112.7	29.7	64.6	124.1	28.3	20.8	57.7	2
Calgary	36.3	39.5	54.2	73.8	48.4	90.1	72.7	51.8	62.9	73.3	40.8	71.6	59.6	3
Camrose	14.5	9.3	*	50.5	54.1	*	24.6	26.7	*	52.9	15.7	7.9	16.0	1
Coleman	28.5	26.0	25.4	59.5	28.7	38.4	91.1	43.0	24.3	127.7	48.7	49.3	49.3	11
Drayton Valley	32.9	22.0	31.9	46.5	66.6	*	*	*	*	*	*	*	40.0	5
Edmonton	25.1	28.2	75.6	102.8	91.3	75.8	95.2	58.1	56.8	71.7	20.0	19.8	60.0	27
EIMU	16.3	23.7	36.7	40.1	29.8	119.5	46.8	43.7	33.4	28.9	13.1	29.8	38.5	1
ERMU	13.6	13.4	19.6	28.7	36.9	34.7	27.7	27.5	15.7	16.6	13.1	7.6	21.3	1
Exshaw	53.1	98.4	21.6	31.2	30.0	42.7	32.9	33.8	30.8	35.9	61.3	55.5	44.4	5
Fort Saskatchewan (Special)	11.8	24.3	19.3	29.3	45.8	64.3	36.0	22.9	28.2	17.8	9.6	6.9	26.3	1
Lethbridge	*	61.6	73.7	163.8	68.6	104.1	94.1	67.9	51.6	145.7	243.4	322.5	121.6	1
Red Deer	*	*	*	*	*	*	*	*	*	*	*	*	*	1
Sherwood Park	14.7	20.1	22.8	52.1	60.6	39.5	29.7	34.3	27.7	43.7	45.4	11.5	33.6	3

STATIC MONITORING RESULTS
 YEAR: 1991
 POLLUTANT: FIXED DUSTFALL
 MONITORING PERIOD: ONE MONTH
 UNITS: MG/100CM2/30 DAYS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG	# OF STATIONS
Blairmore	24.1	13.0	18.7	31.9	37.7	30.2	54.6	20.4	24.0	96.6	19.5	13.6	32.0	2
Calgary	22.3	22.7	31.8	52.7	34.1	51.4	53.6	30.8	36.8	50.6	20.5	54.1	38.5	3
Camrose	7.4	5.1	*	33.5	28.7	*	16.4	17.6	*	31.3	5.9	2.0	9.2	1
Coleman	16.6	15.3	13.5	21.9	15.4	14.5	59.4	26.6	13.6	102.1	33.7	37.9	31.0	11
Drayton Valley	18.1	11.9	19.4	29.0	44.5	*	*	*	*	*	*	*	24.6	5
Edmonton	10.6	12.0	40.0	69.5	61.6	43.2	57.8	35.2	32.7	42.3	10.0	9.3	35.3	27
EIMU	5.9	8.7	22.3	27.8	22.2	86.1	38.2	29.4	24.2	11.9	6.5	9.2	24.4	1
ERMU	3.2	5.5	11.1	15.6	28.0	23.2	20.1	16.0	7.9	2.8	3.3	1.5	11.5	1
Exshaw	34.4	73.9	13.6	13.8	16.6	18.8	18.5	22.5	17.2	21.9	43.8	41.9	28.4	5
Fort Saskatchewan (Special)	2.8	6.8	10.1	14.0	31.8	35.8	25.8	12.2	13.8	5.9	.0	2.6	13.5	1
Lethbridge	*	104.5	59.8	130.7	56.2	85.5	73.5	51.6	39.6	95.0	224.5	300.0	111.0	1
Red Deer	*	*	*	*	*	*	*	*	*	*	*	*	*	1
Sherwood Park	3.9	9.2	11.6	36.5	38.7	16.4	18.6	16.8	19.7	31.1	7.0	5.2	17.9	3

* data not available

STATIC MONITORING RESULTS
 YEAR: 1991
 POLLUTANT: CALCIUM
 MONITORING PERIOD: ONE MONTH
 UNITS: MG/100CM2/30 DAYS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG	# OF STATIONS
Edmonton	.6	.1	1.7	7.1	3.4	.9	2.6	2.2	3.1	5.5	1.2	.9	2.3	4
EIMU	.2	.2	.8	.9	.6	2.5	.8	1.0	.9	.9	.3	.5	.8	1
ERMU	.0	.0	.3	.4	.6	.5	.2	.4	.5	.3	.3	.1	.3	1
Exshaw	7.8	8.3	2.2	2.4	2.8	2.7	3.4	4.5	3.0	4.3	9.5	8.3	5.0	5

* data not available



STATIC MONITORING RESULTS
 YEAR: 1991
 POLLUTANT: TOTAL SULPHATION
 MONITORING PERIOD: ONE MONTH
 GUIDELINE: 0.50 MG/DAY/100 CM2
 UNITS: MG/DAY/100 CM2

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG	# OF STATIONS
Calgary	.087	.068	.090	.050	.043	.052	.044	.040	.048	.075	.045	.058	.058	11
Camrose	.080	*	.060	.016	.009	*	.009	.011	*	.029	.067	.070	.022	1
Edmonton	.059	.043	.051	.036	.033	.032	.042	.029	.034	.043	.045	.054	.042	27
EIMU	.074	.053	.077	.058	.042	.033	.034	.028	.043	.044	.078	.088	.054	1
ERMU	.074	.039	.054	.027	.032	.023	.038	.027	.036	.037	.080	.063	.044	1
Fort McMurray	.079	.121	*	.125	.060	*	.050	.044	.044	.030	*	.043	.066	6
Fort Saskatchewan	.083	.074	.058	.057	.050	.029	.041	.024	.053	.084	.108	.125	.065	4
Fort Saskatchewan (Special)	.053	.073	.060	.044	.024	.030	.035	.032	.046	.049	.072	.083	.050	1
Grande Prairie	*	.013	.012	.011	*	.010	.006	.007	.007	.010	.000	.018	.009	1
Hinton	.004	.006	.009	.007	.005	.003	.003	.003	.003	.004	.006	.008	.005	3
Joffre	*	*	*	.027	.015	*	.011	.012	*	*	*	*	.016	2
Lethbridge	.029	.030	.020	.019	.014	.017	.015	.016	.019	.031	.025	.024	.022	5
Medicine Hat	.046	.032	.020	.016	.015	.019	.023	.016	.025	.032	.032	.029	.025	4
New Norway	*	*	*	.040	.027	*	.012	.022	*	*	*	*	.025	1
Raven Brood	.000	*	.000	*	*	.009	*	.009	.008	.014	*	*	.007	3
Red Deer	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Redwater	.083	.091	.090	.078	.046	.054	.032	.029	.042	.046	.089	.080	.063	4
Sherwood Park	.112	.057	.066	.041	.023	.061	.031	.029	.109	.053	.088	.091	.063	3
St. Albert	.016	.012	.015	.013	.010	.005	.009	.004	*	.008	.011	*	.009	2

* data not available

STATIC MONITORING RESULTS

YEAR: 1991

POLLUTANT: TOTAL SULPHATION

MONITORING PERIOD: THREE MONTHS

GUIDELINE: 0.50 MG/DAY/100 CM2

UNITS: MG/DAY/100 CM2

STATION	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	AVG	# OF STATIONS
Balzac	.062	.068	.050	.071	.063	4
Bigstone	*	*	*	*	*	2
Blue Ridge	*	*	*	*	*	4
Buck Lake	.058	*	*	*	.058	4
Caroline	.061	*	*	*	.061	1
Carstairs	.054	.032	.024	.043	.038	4
Cochrane	.080	.041	.040	.079	.060	4
Coleman	.108	.078	.089	.106	.095	4
Crossfield	.089	.046	.042	.066	.059	5
Diamond Valley	.035	.023	.019	.025	.025	4
Didsbury	.062	*	*	*	.062	6
Edburg	.085	*	*	*	.085	1
Edson	.020	.018	.015	.020	.018	4
Innisfail	.089	*	*	*	.089	3
Jumping Pound	.065	.055	.032	.050	.051	4
Kaybob	*	*	*	*	*	4
Kaybob South	*	*	*	*	*	4
Lone Pine Creek	.054	.023	.024	.046	.037	5
Mayerthorpe	*	*	*	*	*	2
Mazeppa	.052	.031	.032	.036	.038	4
Nevis	.092	*	*	*	.092	7
Okotoks	.059	.072	.018	.032	.045	5
Olds	.056	*	*	*	.056	4
Pincher Creek	.070	.025	.028	.058	.045	6
Quirk Creek	.048	.037	.025	.040	.038	6
Ram River	.067	*	*	*	.067	5
Red Deer	.084	*	*	*	.084	3
Redwater	*	*	*	*	*	4
Rimbey	.074	*	*	*	.074	4
Simonette	*	*	*	*	*	2
Sundre	.086	*	*	*	.086	2
Valleyview	*	*	*	*	*	2
Waterton	.145	.065	.063	.098	.093	8
Wimborne	.085	*	*	*	.085	2
Windfall	*	*	*	*	*	4

* data not available

STATIC MONITORING RESULTS
 YEAR: 1991
 POLLUTANT: HYDROGEN SULPHIDE
 MONITORING PERIOD: ONE MONTH
 GUIDELINE: 0.10 MG/DAY/100 CM2
 UNITS: MG/DAY/100 CM2

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG	# OF STATIONS
Camrose	.013	*	.007	.000	*	*	.003	.006	*	.009	.006	.022	.005	1
Fort McMurray	.026	.012	*	.014	.011	*	.006	.006	.009	.005	*	.004	.010	6
Fort Saskatchewan (Special)	.012	.007	.005	.004	.006	.000	.014	.010	.008	.018	.014	.005	.009	1
Grande Prairie	.000	.003	.003	.011	.003	.003	.010	.006	.008	.000	.010	.006	.005	1
Hinton	.003	.001	.000	.003	.005	.002	.003	.003	.007	.002	.001	.004	.003	3
Joffre	*	.003	*	.002	.003	*	.004	.003	*	*	*	*	.003	2
New Norway	*	.002	*	.002	.003	*	.000	.013	*	*	*	*	.004	1
Red Deer	*	*	*	*	*	*	*	*	.005	*	*	*	.005	2
Sherwood Park	.021	.009	.011	.005	.009	.014	.012	.019	.013	.016	.010	.009	.012	3
St. Albert	.007	.002	.003	.001	.007	.010	.012	.011	*	.008	*	*	.006	2

* data not available

STATIC MONITORING RESULTS
 YEAR: 1991
 POLLUTANT: HYDROGEN SULPHIDE
 MONITORING PERIOD: THREE MONTHS
 GUIDELINE: 0.10 MG/DAY/100 CM2
 UNITS: MG/DAY/100 CM2

STATION	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	AVG	# OF STATIONS
Balzac	.004	.002	.002	.004	.003	4
Bigstone	*	*	*	*	*	2
Blue Ridge	*	*	*	*	*	4
Buck Lake	.008	*	*	*	.008	3
Caroline	.003	*	*	*	.003	1
Carstairs	.003	.005	.001	.004	.003	4
Cochrane	.006	.001	.003	.009	.005	4
Coleman	.012	.003	.007	.006	.007	4
Crossfield	.003	.004	.003	.006	.004	5
Diamond Valley	.002	.001	.001	.002	.001	4
Didsbury	.001	*	*	*	.001	5
Edburg	*	*	*	*	*	1
Edson	.000	.003	.002	.003	.002	4
Innisfail	.000	*	*	*	.000	2
Jumping Pound	.002	.004	.003	.005	.004	4
Kaybob	*	*	*	*	*	4
Kaybob South	*	*	*	*	*	4
Lone Pine Creek	.000	.002	.004	.005	.003	5
Mayerthorpe	*	*	*	*	*	2
Mazeppa	.001	.001	.001	.003	.002	4
Nevis	.015	*	*	*	.015	7
Okotoks	.001	.001	.006	.002	.003	5
Olds	.003	*	*	*	.003	4
Pincher Creek	.003	.002	.003	.003	.003	6
Quirk Creek	.001	.003	.008	.003	.004	6
Ram River	.011	*	*	*	.011	5
Red Deer	.009	*	*	*	.009	4
Redwater	.012	.004	.003	.013	.008	4
Rimbey	.004	*	*	*	.004	4
Simonette	*	*	*	*	*	2
Sundre	.002	*	*	*	.002	2
Valleyview	*	*	*	*	*	2
Waterton	.013	.003	.002	.006	.006	8
Wimborne	.008	*	*	*	.008	2
Windfall	*	*	*	*	*	4

* data not available

STATIC MONITORING RESULTS
 YEAR: 1991
 POLLUTANT: FLUORIDE
 MONITORING PERIOD: ONE MONTH
 GUIDELINE: 40 UG/100 CM2/30 DAYS
 UNITS: UG/100 CM2/30 DAYS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG	# OF STATIONS
Fort Saskatchewan	1.8	.8	3.6	.9	3.0	.0	1.1	3.8	.7	2.7	.5	1.4	1.7	1
Redwater	2.3	1.5	2.7	2.1	5.9	5.0	4.0	5.1	4.0	3.0	1.4	2.6	3.3	4

* data not available

LOCATION OF ACID PRECIPITATION MONITORING STATIONS



ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: BEAVERLODGE

Month	Sample Period (days)	Catch of Collector (ml)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	1	77	6.5	4.96	a	51.60	0.021	0.059	<0.01	0.009	<0.01	0.004	0.003	0.007	0.001	42.26	b	0.854
2	2	21	149	8.8	5.27	a	41.92	0.049	0.005	0.017	<0.01	0.010	0.002	0.013	0.002	34.88	1.054	0.881
3	3	31	24	5.64	a	45.58	a	0.142	a	0.092	<0.01	a	0.06	0.007	0.034	a	1.013	b
4	4	31	442	5.24	b	68.48	0.423	0.276	0.127	0.024	<0.01	0.013	0.01	0.031	0.005	54.92	1.955	1.189
5	5	30	1242	5.04	b	68.48	0.423	0.276	0.127	0.024	<0.01	0.013	0.01	0.031	0.005	54.92	1.955	1.189
6	6	24	2663	5.04	b	78.50	0.374	0.320	0.058	0.053	<0.01	0.023	0.01	0.031	0.009	54.92	1.955	1.189
7	7	39	648	5.18	b	71.07	0.357	0.320	0.030	0.020	<0.01	0.046	0.037	0.096	0.019	44.97	1.170	1.039
8	8	25	1524	5.30	a	65.57	0.295	0.217	0.051	0.029	<0.01	0.081	0.135	0.065	0.006	53.25	0.965	1.319
9	9	28	611	5.39	a	41.0	38.85	0.144	0.043	0.009	<0.01	0.016	0.023	0.044	0.005	<15	1.383	1.117
10	10	31	784	5.51	a	2.99	75.83	0.087	0.042	0.009	<0.01	0.006	0.008	0.020	0.002	<15	1.159	1.354
11	11	30	373	5.34	a	3.57	65.65	0.091	0.065	0.023	<0.01	0.010	0.006	0.011	0.003	<15	1.363	0.750
12	12	31	376	5.27	a	5.85	67.49	0.104	0.165	0.023	<0.01	0.015	0.021	0.038	0.007	50.14	5.850	1.007
Total	358.0	8800.0	484.8	5.21		2.2	1.8	0.4	0.6	0.0	0.0	0.4	0.3	0.5	0.1			

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: CALGARY

Month	Sample Period (days)	Catch of Collector (ml)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	1	26	29	5.95	a	6.27	62.87	0.126	0.055	0.014	<0.01	0.012	0.001	0.027	0.006	a	b	1.278
2	2	34	296	5.60	b	10.30	48.05	0.226	0.452	0.128	<0.01	0.015	0.002	0.038	0.008	48.42	1.003	1.209
3	3	22	437	5.31	b	10.30	48.05	0.226	0.452	0.128	<0.01	0.015	0.002	0.038	0.008	40.23	1.024	0.969
4	4	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
5	5	32	2773	5.70	b	7.92	40.20	1.425	0.835	0.481	<0.01	0.023	0.013	0.332	0.048	<15	1.012	1.055
6	6	32	3571	5.98	b	7.54	70.82	1.571	0.801	0.514	<0.01	0.040	0.077	0.429	0.072	43.68	1.039	1.137
7	7	26	1731	5.13	b	8.22	78.22	0.447	0.226	0.053	<0.01	0.007	0.032	0.184	0.032	<15	0.937	1.181
8	8	27	1593	5.13	b	9.28	67.50	0.368	0.426	0.042	<0.01	0.024	0.017	0.185	0.025	50.80	1.001	1.284
9	9	31	342	5.8	a	74.10	108.50	0.485	<0.01	0.071	<0.01	0.012	0.016	1.081	0.504	90.42	1.458	1.406
10	10	31	261	5.70	a	6.57	65.61	0.060	0.078	0.011	<0.01	0.017	0.006	0.047	0.010	<15	1.067	1.418
11	11	29	113	6.65	a	a	a	a	a	a	a	a	a	a	a	a	b	b
12	12	29	113	6.65	a	a	a	a	a	a	a	a	a	a	a	a	b	b
Total	322.0	10863.0	420.8	5.63		5.6	3.6	1.8	0.4	0.0	0.0	0.2	0.2	2.5	0.7			

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: COLD LAKE

Month	Sample Period (days)	Catch of Collector (ml)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	1	107	11.6	4.92	a	7.62	46.39	0.042	0.110	0.004	<0.01	0.004	0.001	0.011	0.004	15.11	1.113	0.982
2	2	399	15.8	4.76	b	10.74	55.19	0.101	0.019	0.010	<0.01	0.003	<0.01	0.011	0.002	18.42	1.152	0.898
3	3	248	15.6	4.96	a	10.23	62.69	0.159	0.080	0.021	<0.01	0.004	0.002	0.013	0.002	41.68	1.054	1.025
4	4	288	512	42.8	4.86	10.13	69.44	0.401	0.467	0.097	<0.01	0.008	0.005	0.065	0.012	<15	1.087	0.961
5	5	31	725	5.13	b	11.38	71.30	0.409	0.323	0.070	<0.01	0.009	0.017	0.088	0.014	64.95	1.394	0.872
6	6	29	1189	5.73	a	8.28	89.13	0.681	0.550	0.080	0.086	0.034	0.115	0.172	0.041	63.95	1.085	1.509
7	7	30	932	5.01	a	10.71	91.38	0.187	0.181	0.014	<0.01	0.004	0.010	0.054	0.014	70.39	1.184	0.923
8	8	30	758	5.01	a	8.53	92.97	0.163	0.116	0.007	<0.01	0.008	0.008	0.051	0.010	72.47	1.171	1.052
9	9	29	376	4.4	b	10.67	49.41	0.120	0.128	0.007	<0.01	0.003	0.004	0.058	0.007	<15	1.114	1.102
10	10	30	629	5.99	a	4.78	65.78	0.108	0.149	0.006	<0.01	0.004	0.004	0.007	0.001	48.78	1.014	1.655
11	11	28	324	5.3	a	5.12	79.36	0.088	0.096	0.032	<0.01	0.006	0.006	0.013	0.003	49.42	1.145	0.949
12	12	33	184	5.53	a	5.96	74.43	0.146	0.278	0.022	<0.01	0.102	0.006	0.044	0.011	63.64	1.046	1.076
Total	360.0	6383.0	322.9	5.08		2.8	2.9	1.1	0.2	0.1	0.0	0.2	0.2	0.6	0.1			

* from closest Environment Canada weather station
 a insufficient sample for analysis
 b data not available

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: DRAYTON VALLEY

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	21	417	1.8	5.10	7.61	0.00	0.00	0.00	0.00	0.00	<0.01	0.006	0.001	0.008	0.002	<15	1.028	1.202
2	21	417	1.8	5.10	7.61	0.00	0.00	0.00	0.00	0.00	<0.01	0.006	0.001	0.008	0.002	<15	1.028	1.202
3	26	132	20.6	5.25	19.80	48.71	0.434	0.523	0.297	0.027	<0.01	0.019	0.004	0.020	0.004	36.32	0.765	1.062
4	24	1046	71.6	5.67	8.58	64.57	1.005	0.523	0.556	0.078	<0.01	0.032	0.043	0.177	0.019	58.55	1.214	1.320
5	31	2454	65.7	5.98	8.92	74.36	1.005	0.523	0.436	0.031	<0.01	0.023	0.107	0.191	0.034	68.50	1.067	1.432
6	30	2077	95.7	5.14	7.23	64.12	1.129	0.571	0.326	0.050	<0.01	0.023	0.055	0.189	0.040	<15	0.946	1.454
7	31	3663	84.3	5.79	5.18	55.44	0.642	0.326	0.263	0.023	<0.01	0.021	0.051	0.184	0.034	44.43	1.099	1.361
8	31	808	88.0	5.11	9.51	84.47	1.148	0.842	0.240	0.062	<0.01	0.021	0.044	0.434	0.060	76.98	1.036	1.226
9	31	732	45.7	5.61	5.66	61.40	0.405	0.213	0.151	0.017	<0.01	0.005	0.012	0.080	0.017	<15	1.098	1.166
10	30	2024	82.5	6.20	4.18	66.78	0.403	0.257	0.109	0.012	<0.01	0.007	0.007	0.050	0.005	54.62	1.608	0.519
11	37	180	8.6	5.65	6.31	70.30	0.061	0.056	0.030	0.017	<0.01	0.011	0.006	0.027	0.005	51.63	1.608	0.491
12	30	124	21.8	5.42	9.05	51.21	0.066	0.396	0.048	0.058	<0.01	0.046	0.004	0.050	0.006	<15	1.341	0.887
Total	370.0	13848.0	613.9	5.57			6.5	4.5	2.5	0.5	0.0	0.3	0.4	1.5	0.2			

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: EDMONTON

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	27	221	14.6	5.24	6.41	49.32	0.058	0.088	0.024	0.009	<0.01	0.006	0.003	0.023	0.003	<15	1.236	1.443
2	28	605	24.3	5.18	6.73	59.79	0.173	0.136	0.053	0.021	<0.01	0.019	0.004	0.023	0.003	50.09	1.276	1.018
3	32	343	14.0	4.79	19.10	64.18	0.273	0.384	0.112	0.031	<0.01	0.016	0.003	0.036	0.006	20.26	1.122	0.897
4	28	1189	53.5	5.51	6.94	65.41	0.650	0.372	0.253	0.025	<0.01	0.038	0.017	0.113	0.015	50.98	0.995	1.168
5	31	2583	92.2	5.67	7.06	64.28	1.000	0.717	0.392	0.043	<0.01	0.029	0.031	0.170	0.020	48.89	1.146	1.065
6	32	2730	103.4	5.18	6.68	65.97	1.004	0.728	0.256	0.048	<0.01	0.055	0.027	0.214	0.030	47.13	0.925	1.073
7	29	595	19.0	4.68	15.50	105.60	0.472	0.232	0.061	0.013	<0.01	0.004	0.016	0.117	0.019	82.31	0.925	1.095
8	30	1819	77.6	4.79	12.79	80.23	1.073	0.999	0.274	0.038	<0.01	0.016	0.015	0.238	0.029	63.88	1.052	1.084
9	31	601	16.6	5.36	5.58	67.78	0.126	0.064	0.023	0.005	<0.01	0.002	0.004	0.034	0.005	47.49	1.186	1.062
10	31	1403	69.0	5.72	4.12	71.72	0.397	0.277	0.221	0.019	<0.01	0.010	0.009	0.043	0.005	52.57	1.073	1.117
11	b	b	8.6	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
12	b	b	21.9	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
Total	299.0	12089.0	512.7	5.15			5.2	4.0	1.7	0.3	0.0	0.2	0.1	1.0	0.1			

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: FORT CHIPEWYAN

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	40	1355	29.8	5.70	6.37	37.67	0.112	0.098	<0.01	0.244	<0.01	0.146	0.080	0.060	0.011	<15	1.077	1.123
2	28	862	20.4	5.82	5.31	57.90	0.106	0.069	0.002	0.072	<0.01	0.047	0.027	0.058	0.014	46.78	1.150	1.188
3	25	738	29.2	5.39	4.61	40.37	0.113	0.109	0.005	0.052	<0.01	0.037	0.025	0.026	0.006	<15	1.206	0.926
4	a	b	10.2	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
5	a	b	11.2	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
6	27	7311	77.2	4.83	8.43	73.26	0.610	0.339	0.008	0.068	<0.01	0.015	0.016	0.065	0.009	54.85	1.108	0.830
7	a	b	110.2	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
8	34	3052	21.8	5.19	5.43	78.63	0.143	<0.01	0.011	0.019	<0.01	0.005	0.016	0.048	0.006	54.52	1.146	1.488
9	28	3071	28.2	4.95	9.274	40.34	0.274	0.012	<0.01	0.019	<0.01	0.006	0.011	0.043	0.005	<15	1.246	0.959
10	a	b	342	41.8	a	a	a	a	a	a	a	a	a	a	a	a	a	a
11	29	342	41.8	5.75	3.47	71.82	0.149	0.079	<0.01	0.076	<0.01	0.072	0.069	0.063	0.008	60.41	1.094	1.237
12	34	769	31.0	5.47	4.49	71.77	0.124	0.102	<0.01	0.080	<0.01	0.060	0.045	0.051	0.007	57.19	1.089	1.140
Total	245.0	17500.0	450.2	5.01			1.6	0.8	0.0	0.6	0.0	0.4	0.3	0.4	0.1			

* from closest Environment Canada weather station

a insufficient sample for analysis

b data not available

ACID PRECIPITATION MONITORING DATA
YEAR: 1991
STATION: FORT MACKAY

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	a	a	13.1	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
2	a	a	16.2	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
3	a	a	23.1	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
4	a	a	31.2	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
5	a	a	187.9	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
6	a	a	114.1	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
7	a	a	22.4	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
8	a	a	81.2	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
9	a	a	36.5	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
10	a	a	33.9	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
11	a	a	17.2	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
12	a	a	582.2	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b
Total	a	a	14146.0	582.2	4.85	6.0	3.7	0.7	0.4	0.0	0.0	0.2	0.1	1.0	0.2			

ACID PRECIPITATION MONITORING DATA
YEAR: 1991
STATION: FORT MCMURRAY

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	31	177	13.1	5.04	7.18	48.09	0.087	0.031	<0.01	0.033	<0.01	0.019	0.001	0.017	0.004	42.48	1.195	0.997
2	32	197	16.2	5.03	10.18	66.53	0.083	0.177	0.012	0.027	<0.01	0.014	0.002	0.020	0.005	59.30	1.194	0.934
3	27	461	23.1	5.03	11.27	60.58	0.303	0.202	0.086	0.018	<0.01	0.013	0.003	0.027	0.004	48.78	1.292	0.907
4	30	71	1.2	4.66	22.70	60.58	0.037	0.029	0.010	0.002	<0.01	0.001	0.000	0.004	0.001	a	1.089	0.888
5	34	1100	35.4	4.82	14.00	84.74	0.613	0.279	0.046	0.071	<0.01	0.018	0.056	0.096	0.018	66.49	1.249	0.904
6	30	5652	187.9	4.85	7.83	69.58	1.325	0.832	0.094	0.071	<0.01	0.021	<0.01	0.103	0.023	53.79	1.095	0.908
7	28	2912	114.1	4.54	9.55	91.39	0.964	0.620	0.021	0.038	<0.01	0.011	0.003	0.091	0.021	64.19	1.268	0.804
8	34	1774	82.2	5.13	11.50	52.76	1.485	0.883	0.010	0.064	<0.01	0.003	0.004	0.523	0.076	21.51	1.643	1.258
9	31	814	33.5	4.78	11.21	92.44	0.447	0.053	0.04	0.019	<0.01	0.010	0.004	0.004	0.005	68.43	1.193	0.877
10	32	287	33.9	5.14	17.89	90.63	0.269	0.197	0.024	0.041	<0.01	0.027	0.007	0.054	0.011	70.29	1.333	0.858
11	38	244	17.2	4.98	8.67	69.63	0.114	0.112	0.007	0.035	<0.01	0.023	0.005	0.017	0.005	55.13	1.258	0.875
Total	374.0	14146.0	582.2	4.85	6.0	3.7	0.7	0.4	0.0	0.0	0.0	0.2	0.1	1.0	0.2			

ACID PRECIPITATION MONITORING DATA
YEAR: 1991
STATION: FORT VERMILION

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)*	pH	Specific Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	57	624	18.0	5.90	3.81	59.54	0.040	0.082	0.003	0.021	0.014	0.012	0.036	0.022	0.006	50.91	1.042	1.290
2	8	464	34.4	5.16	9.29	44.55	0.330	0.207	0.040	0.043	<0.01	0.036	b	b	0.008	<15	1.444	0.898
3	b	b	15.2	b	a	a	a	a	a	a	a	a	a	a	a	b	b	b
4	58	0	0.2	a	a	a	a	a	a	a	a	a	a	a	a	b	b	b
5	33	534	24.0	5.93	10.28	65.04	0.225	0.145	0.215	0.036	0.025	0.022	0.047	0.062	0.010	57.77	1.196	1.863
6	30	1945	127.0	5.26	3.70	53.56	0.323	0.370	<0.01	0.033	<0.01	0.013	0.013	0.055	0.013	38.38	1.241	0.788
7	28	1231	82.2	5.21	4.22	64.06	0.255	0.327	0.016	0.067	<0.01	0.039	0.017	0.077	0.011	41.81	1.083	0.981
8	33	1007	40.8	5.11	6.68	73.99	0.331	0.220	0.055	0.029	<0.01	0.016	0.023	0.107	0.011	52.96	1.023	1.188
9	29	244	30.8	6.46	5.65	39.13	0.102	0.068	0.049	0.175	<0.01	0.131	0.040	0.075	0.008	<15	1.042	1.115
10	32	228	14.2	6.37	a	137.10	0.750	0.625	0.103	0.301	<0.01	0.175	0.066	1.187	0.122	85.33	b	2.353
11	30	755	45.2	5.64	7.24	49.94	0.216	0.185	0.030	0.066	<0.01	0.037	0.017	0.044	0.004	<15	1.190	2.764
12	34	340	47.7	5.16	5.99	63.71	0.280	0.348	0.033	0.085	<0.01	0.052	0.016	0.129	0.016	45.05	1.591	1.094
Total	372.0	7172.0	479.7	5.31	2.8	2.6	0.5	0.9	0.0	0.0	0.0	0.5	0.3	2.2	0.2			

* from closest Environment Canada weather station
a insufficient sample for analysis
b data not available

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: HIGH PRAIRIE

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)	pH	Specific Total Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cation/Anion Ratio
1	30	227	8	5.83	5.36	43.28	0.044	0.054	0.008	0.013	0.013	0.004	0.004	0.036	0.004	<15	1.110
2	37	13.4	5.55	5.35	6.11	44.36	0.081	0.110	0.029	0.015	<0.01	0.008	0.004	0.032	0.003	51.39	1.188
3	30	375	7	5.43	34.60	70.60	0.225	0.067	<0.01	0.046	0.009	0.033	41.04	0.426	0.035	41.04	1.221
4	29	107	4.7	4.55	30.40	98.00	0.197	0.172	0.037	0.008	<0.01	0.009	0.007	0.051	0.005	33.70	1.045
5	30	1029	59.8	5.02	3.30	52.63	0.205	0.144	0.073	0.011	<0.01	0.011	0.019	0.045	0.007	38.41	0.847
6	29	2915	57.8	5.06	3.12	66.93	0.387	0.321	0.046	0.019	<0.01	0.009	0.054	0.093	0.017	<15	0.937
7	30	533	78.8	5.33	5.53	56.97	0.520	<0.01	<0.01	b	<0.01	0.048	0.086	0.217	0.032	<15	1.002
8	29	1049	69.0	5.20	7.37	137.60	0.637	0.209	0.123	0.086	<0.01	0.027	0.18	0.200	0.034	b	1.320
9	29	711	43.4	7.18	3.42	91.63	0.169	0.121	0.076	0.032	<0.01	0.007	0.015	0.269	0.008	75.22	1.060
10	30	170	17.0	5.18	5.43	76.30	0.035	0.138	0.004	0.012	<0.01	0.013	0.002	0.017	0.002	56.02	0.955
11	29	140	3.0	6.01	5.06	66.57	0.138	0.167	<0.01	0.072	<0.01	0.047	0.027	0.050	0.006	58.27	1.874
12	30	1205	42.2	6.01	5.06	66.57	0.138	0.167	<0.01	0.072	<0.01	0.047	0.027	0.050	0.006	58.27	1.874
Total	353.0	8390.0	467.6	5.30	2.6	1.6	0.4	0.4	0.0	0.0	0.0	0.2	0.4	1.2	0.2		

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: KANANASKIS

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)	pH	Specific Total Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cation/Anion Ratio
1	31	291	6.8	5.68	3.14	39.21	0.016	0.040	<0.01	0.009	<0.01	0.005	<0.01	0.018	0.004	<15	0.923
2	28	165	11.2	5.45	2.64	46.07	0.053	0.062	<0.01	0.014	<0.01	0.010	0.002	0.018	0.003	38.23	1.134
3	31	1974	26.0	5.38	5.03	52.49	0.112	0.187	0.047	0.035	<0.01	0.021	0.003	0.039	0.008	42.15	1.037
4	30	328	74.0	5.37	12.31	60.41	0.422	0.392	0.115	0.018	<0.01	0.014	0.008	0.072	0.015	62.28	1.067
5	31	403	103.3	4.77	10.16	144.20	1.057	0.473	0.078	0.033	<0.01	0.010	0.036	0.092	0.018	82.38	1.152
6	31	1554	41.4	5.47	7.54	144.74	0.821	0.226	0.044	0.030	<0.01	0.004	0.032	0.172	0.065	<15	0.948
7	31	1541	53.2	4.76	11.51	81.20	0.856	0.416	0.097	0.030	<0.01	0.009	0.015	0.329	0.024	63.62	1.032
8	30	1817	41.6	5.02	8.11	71.89	0.415	0.211	0.048	0.013	<0.01	0.004	0.007	0.084	0.014	<15	1.138
9	31	1117	25.1	6.01	9.29	77.86	0.196	0.256	0.056	0.013	<0.01	0.009	0.010	0.251	0.037	66.32	1.128
10	30	538	17.4	5.18	5.27	51.73	0.087	0.122	0.021	0.008	<0.01	0.004	0.002	0.030	0.005	<15	1.002
11	31	141	37.9	7.13	5.12	59.94	0.180	0.193	0.022	0.006	<0.01	0.042	0.013	0.204	0.027	51.92	0.721
Total	366.0	17381.0	462.2	5.02	4.2	2.9	0.7	0.3	0.0	0.0	0.0	0.1	0.1	1.4	0.2		

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: RED DEER

Month	Sample Period (days)	Catch of Precip. (mm)	Total Precip. (mm)	pH	Specific Total Cond. (us/cm)	Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cation/Anion Ratio
1	31	410	8	5.43	5.01	45.50	0.038	0.077	0.026	0.008	<0.01	0.007	0.001	0.032	0.004	36.82	1.042
2	27	492	22.6	5.42	7.09	43.20	0.518	0.194	0.126	0.008	<0.01	0.007	0.004	0.034	0.004	36.82	1.042
3	34	692	14.8	5.77	12.55	49.66	0.290	0.316	0.140	0.019	<0.01	0.007	0.002	0.047	0.008	36.82	1.042
4	a	291	99.3	5.60	6.61	47.94	1.157	0.792	0.507	0.054	<0.01	0.042	0.017	0.222	0.026	38.12	0.954
5	33	2046	143.8	5.36	6.58	72.71	1.343	0.896	0.388	0.073	<0.01	0.029	0.045	0.249	0.040	50.19	1.136
6	25	2031	177.3	5.57	6.42	63.57	0.818	0.692	0.357	0.042	<0.01	0.009	0.042	0.219	0.037	49.17	0.918
7	34	2630	122.7	4.97	9.06	72.49	1.130	0.925	0.339	0.036	<0.01	0.016	0.013	0.145	0.017	55.55	1.160
8	26	725	27.5	5.06	11.90	57.06	0.485	0.291	0.135	0.040	<0.01	0.006	0.013	0.096	0.012	<15	1.112
9	31	557	46.9	5.74	8.90	92.45	0.691	0.489	0.464	0.017	<0.01	0.014	0.034	0.120	0.045	65.24	0.896
10	40	274	12.0	5.72	7.09	68.77	0.136	0.108	0.071	0.010	<0.01	0.004	0.003	0.023	0.007	44.87	0.975
11	23	0	6.9	a	a	a	a	a	a	a	a	a	a	a	a	a	b
Total	338.0	12498.0	600.2	5.31	6.3	4.8	2.5	0.3	0.0	0.0	0.0	0.1	0.2	1.2	0.2		

* from closest Environment Canada weather station
 a insufficient sample for analysis
 b data not available

ACID PRECIPITATION MONITORING DATA

YEAR: 1991

STATION: SUFFIELD

Month	Sample Period (days)	Catch of Precip. (mm)*	Total Precip. (mm)	pH	Specific Cond. (us/cm)	Total Acidity (ueq/l)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)	Strong Acidity (ueq/l)	Cond. Ratio	Cation/Anion Ratio
1	31	82	11.8	5.68	a	51.32	0.160	0.405	0.051	0.053	<0.01	0.039	0.051	0.107	0.031	39.09	b	1.202
2	28	462	19.5	5.59	9.53	63.75	0.251	0.276	0.098	0.039	<0.01	0.028	0.040	0.080	0.019	46.52	0.983	1.240
3	31	172	23.1	6.72	23.10	64.88	0.709	0.962	0.225	0.152	<0.01	0.121	0.100	0.270	0.059	37.78	1.003	0.956
4	31	186	45.1	5.95	8.84	77.33	0.637	0.231	0.171	0.039	<0.01	0.024	0.008	0.073	0.013	55.76	1.041	1.083
5	31	369	45.1	5.95	6.84	77.33	0.637	0.231	0.171	0.039	<0.01	0.024	0.008	0.073	0.013	55.76	1.041	1.083
6	30	2815	100.7	6.46	6.99	52.04	0.802	0.816	0.663	0.087	0.003	0.044	0.042	0.334	0.172	39.80	1.029	2.689
7	31	801	25.4	5.64	6.35	63.92	0.184	0.239	0.069	0.032	<0.01	0.008	0.015	0.153	0.020	47.62	1.125	1.972
8	34	98	49.7	6.37	6.90	57.26	0.389	0.520	0.166	0.038	<0.01	0.020	0.021	0.235	0.059	49.44	1.039	1.957
9	27	205	10.8	5.40	23.90	87.92	0.422	0.395	0.075	0.016	<0.01	0.030	0.022	0.171	0.051	54.24	1.039	1.717
10	31	175	16.0	5.55	13.40	77.58	0.297	0.296	0.106	0.016	<0.01	0.016	0.025	0.154	0.040	40.93	0.981	1.593
11	30	63	6.1	5.60	14.40	a	0.155	0.145	0.039	0.009	<0.01	0.011	0.015	0.059	0.015	a	0.923	1.234
12	33	105	3.3	5.87	5.18	62.20	0.025	0.020	0.005	0.002	<0.01	0.002	0.001	0.010	0.002	51.36	1.113	1.102
Total	367.0	9241.4	380.9	5.59			4.5	4.6	1.8	0.5	0.1	0.5	0.4	1.7	0.5			

* from closest Environment Canada weather station

a insufficient sample for analysis

b data not available

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